

Automatic Electric Overseas

AE's overseas holdings were important to the firm's development. They gave increased market opportunities for their product at a time when extra income was desperately needed. With licensees, resellers and local manufacturers all selling step equipment the Strowger switch became a de facto world standard for automatic switching. They had some opposition, and the British case is a good example.



Argentina

Argentina bought its phones mainly from the U.S. Early phones are also known with ATM dials from Britain, with the dial inserts printed in Spanish. These include both the 1908 small wooden wall phone and the BPO No. 72. Whether any manufacturing took place in Argentina is at present unknown.

This advertisement suggests that the phones and switchgear were fully imported.

Australia

Australia standardized early on step-by-step, with most of its product sourced initially from the United States. The first Post Office installation was at Geelong on 6th July 1912, making it the third public auto exchange outside the U.S., although the NSW Government Railways had an earlier one installed at their headquarters. The equipment was fully imported from the U.S., including the telephones. The 1908 small black wallphone with the Mercedes dial and the 1918 candlestick were both used. Despite some initial problems, Hesketh, the Post Office's Chief Electrical Engineer, was impressed enough to announce that in future all exchanges in capital cities would be automatic. At this point the only two large networks of automatic exchanges were in San Francisco and Los Angeles, so it was a brave decision. There was also some doubt that the public could remember 5 or 6 digit telephone numbers !

In 1925 ATM provided exchanges for Sydney, marking a switch to British sources for the Australian Post Office. Equipment was then purchased from all five British suppliers. The Rural Automatic Exchange (RAX), a small self-contained transportable automatic exchange, was developed in the 1920s and 1930s. It was based on early designs from Siemens Brothers in Britain, in turn based on an earlier Siemens & Halske system from Germany. RAXs were used widely in Australia. The first one was installed at Barup in Victoria in 1925. Even in the 1950s, about 75% of country exchanges had less than 20 lines connected. At this time there were more than 1000 RAX's in service in Australia. Some were still imported from Britain, but most were now being built in Australia.

In 1925 only a small number of exchanges was automatic, because many of the manual exchanges were fairly new and replacement could not be justified. As these exchanges aged they were upgraded to auto and by 1939 75% of Melbourne was connected to automatic exchanges.

An Automatic Electric subsidiary company, Automatic Electric Telephones Pty Ltd, was established in Sydney at a fairly early but unknown date. It does not appear to have manufactured telephones, and was probably a sales and contact point for its American parent. Around 1933 it was known Automatic Telephones Ltd, with its head office at Geelong House, 26 Clarence Street, Sydney. At some time (possibly post-WW2) the Australian company became British Automatic Telephone & Electric Pty Ltd. Its head office was now at 84-88 William Street, Melbourne, with another office at 54 Oxford Street in Sydney and agents in Brisbane, Perth and Hobart. The same company was also present in New Zealand.

They were still selling some product such as answering machines into the 1950s, but were sold to Clyde Industries Ltd in 1958. Automatic Electric of the USA also sold its small holding in Telephone and Electrical Industries Pty Ltd at the same time.

Belgium

After Western Electric bought out Bell's holdings in BTMC, the Bell directors were replaced with WE nominees. The redundant executives set up a new company, ATEA, to build telephones in opposition to BTMC. In 1926 ATEA was bought by the Theodore Gary group, who appointed a board of influential local people, British managers and investors, and an American engineer. In 1931 the name was changed to Automatique Electrique de Belgique. The company had a long and successful history as one of the major non-U.S. developers of the Strowgersystem.

During World War 2, ATEA was forced to make Siemens' version of the step switch.

The company became a center for research and development as well as manufacturing, and was one of the first test centers for AE's new electronic EAX switch. In 1986 ATEA was bought by Siemens.

ATEA's history is available at Jan Verhelst's site at <http://home.scarlet.be/jan.verhelst/atea>

Canada

In 1893 the Automatic Telephone & Electric Company of Canada was formed to duplicate Strowger technology in Canada, which was becoming rather nationalistic and showing a desire to be free of industry ties to its southern neighbour. The company appears to have been little more than a money-raising share float, as it never installed a single telephone or exchange.

In 1908 - 1909 the Canadian Government started nationalizing the private telephone companies to gain the benefits of interconnection and orderly development. The provincial administrations who supervised the networks opted for automatic service, but this did not necessarily mean Strowger. Romaine Callender had already invented Canada's first automatic switch and his work was being carried on by Canadian Machine Telephone under the Lorimer Brothers.

In 1897 they set up manufacture in Peterborough, Ontario. Unfortunately the Lorimer system was unrefined and had not been adapted to service bigger exchanges, and deliveries were erratic. The city of Edmonton waited two years for its exchange before canceling the order in 1907 and going to Automatic Electric. AE had a working exchange installed in two months (the older 3-wire system), and this marked the end of the locally-built product. Canada was served mostly by imported product, first from the U.S., then later from Britain. As the size of the market grew, however, local manufacture of Strowger switchgear and telephones began.

The British Columbia Telephone Co (BC Tel, a Gary Group company) was serviced by Strowger exchanges and telephones built by the Eugene F. Phillips Electrical Works (also bought by Gary). In 1953 the Gary Group built a new Automatic Electric factory, shortly before the GTE merger. The old Phillips factory was bought by British Insulated & Callender Cables. BCTel was also supplied by another Gary company, Lenkurt Electric (Canada) Ltd. This company and Automatic Electric (Canada) merged in 1979 to form MicroTel Ltd.

Another AE plant in Lethbridge, Alberta, produced bakelite AE telephones. It closed in 1983. There was a third plant in Richmond, British Columbia, about which little is known.

More detail is available at <http://www.islandregister.com/phones/ae.html>

China

Automatic Telephones Ltd sold Strowger systems into China, but nothing else is known of this company.

France

Thomson-Houston bought a license in 1911, and installed an American-built unit in Nice in 1913. Many other European manufacturers were trying for the French market, and many were offering versions of Strowger exchanges.

Unfortunately the French PTT decided to standardize on ITT's Rotary system in 1924, sublicensed to two of Thomson-Houston's competitors. Thomson-Houston sold its telephone manufacturing division to ITT in 1925 and retired from the telephone market. Another reason given for the decision to go with ITT was that post-War reparations from Germany could have flooded the market with Siemens & Halske Strowger switchgear, virtually giving them control of the French telephone system.

Germany

Siemens & Halske was one of the first European firms to license the Strowger technology for the German Empire, in 1909. Unlike most countries, they even built Strowger phones until they could design their own using the newer dial. Their telephones turn up in many European countries, often with local telephone company brands on them.

They redesigned and improved the technology considerably over its life, and it was adopted as standard by the forward-thinking German Post Office. Germany was the first country in the world to go fully automatic. The second AE exchange in Europe was in Berlin in 1899. It had a few hundred subscribers and was as much for evaluation as for usage.

The factory was bombed during World War Two and it took some time to replace. Many companies took advantage of this and bought equipment from Britain and direct from the U.S. since Siemens lost its rights to the AE patents as a result of the War.

Great Britain

In 1898 the Direct Telephone Exchange Corporation published a brochure in London promoting Strowger's automatic exchange. This was the old version, with three wires to the customer's telephone and press-button "dialling". Each incoming line terminated on a bimotional switch, which made the system expensive and space-consuming. The company did not achieve any sales.

In 1908 at the White City Exposition in London, the new version Strowger switch with the "sunburst" dial on the phone, a selector to look for a vacant switch, and only two wires to the customers' premises was demonstrated by Alexander Keith and Joseph Harris on behalf of the Automatic Electric Company. It was noticed by Dane Sinclair, the manager of the [British Insulated & Helsby Cable Company](#). He urged his Board to obtain the British license for the system. The Board agreed, obtained the rights in 1911, and set up a new company to build and promote automatic switching. It was called the Automatic Telephone Manufacturing Company, and was sited at BI&H's new factory at Edge Lane in Liverpool. AE had a substantial interest. The timing was extremely fortunate.

The British Post Office had been investigating automatic switching for some years, and would no doubt have noticed the new automatic exchanges being commissioned in Europe. A test Strowger exchange at Epsom was commissioned in 1912, the second in the world outside the U.S., followed by another at BPO Headquarters at St Martin's-le-Grand. Since ATM only began building equipment at Edge Lane in 1912, it seems likely that the Epsom installation was done with equipment imported from the U.S.. The British Post Office was also investigating automatic switches made by Bell Telephone Manufacturing Co. of Antwerp (their Rotary System), a Betulander system made by Relay Automatic, and the [Lorimer system \(Canadian Machine Telephone\)](#).

Canadian Machine Telephone's system was slow arriving, relatively underdeveloped, and had unforeseen problems in larger installations.

BTMC's Rotary system was initially favoured by the Post Office engineers. It was somewhat more developed but still needed further work. They also made the major political error of proposing to build the equipment at their Belgian factory until the Woolwich factory could be equipped to manufacture it. Woolwich was lagging at this point. It had been forced to produce war materials during World War 1 and was still slowly readjusting to peacetime

production..

Relay Automatic's system was still being developed and was restricted in the size of the exchange it could handle.

L M Ericssons had an early automatic switch which later became their extremely popular Crossbar system, but at this stage it was only used for PAX (internal exchanges).

The BPO standardized on the Automatic Electric Strowger switch in 1923 only after the Director system was introduced. These exchanges were of the DAX (Director controlled Automatic eXchange) type, and became the only exchange approved for network use in Britain (and, therefore most of its Dominions). The later direct controlled UAX version also had the same approval. ATM built two more factories to manufacture the equipment. The BPO did not adopt AE phones, however, and it was some further years before they realized that their customers preferred the convenience of a handset.

In 1921 the company was bought out by AE and a new technical manager was appointed, Mr A F Bennett. He came from AE in Chicago, and it became common practice to find AE staff, particularly engineers, holding high positions in overseas firms. Bennett was instrumental in helping other countries such as Poland to set up their own manufacturing facilities, thus spreading AE's influence further.

In 1936 the company became Automatic Telephone and Electric to reflect its wider range of product. It may also have returned to full British ownership at this time. The company reduced production during World War 2, but the end of the war saw tremendous demands placed on them by European countries whose plant had been damaged by bombing.

Andrew Emerson's history of ATM is available at Bob Freshwater's British Telephones website at <http://www.britishtelephones.com/histatm.htm>

AE also granted rights to their patents to Siemens Brothers, who manufactured the BPO-pattern equipment.

India

After the Second World War, Mr Bennett helped the Indian Government set up their own manufacturing, using equipment supplied by ATE. The arrangement was suitable for India, as it allowed them to produce a proven system at minimum expense. Their manufacturing company became India Telephone Industries.

Italy

Automatic Electric had a manufacturing operation in Italy from the 1920s, set up by the Gary group. It was known for a while as Autelco. In the 1970's and 1980's it was known under the name "GTE Telecomunicazioni".

They participated in the internationalisation of the public switch EAX nr2 and GTD5, and had a great expertise in microwave links. Belgium's national radio and television station used microwave links within the country, based on this manufacturer's equipment. They distributed the digital PABX, designed at ATEA in Belgium, in Italy. This was an example of the trading of information and expertise between the Gary Group's companies.

In the 1970's and 1980's, their headquarters were located in Milan. By this time they were known as GTE Telecomunicazioni S. p. A. The company was transferred to a joint GTE / Siemens A G company in 1986. Siemens owned 80% of the company, and later bought the rest. This was part of the rationalization of GTE's overseas operations in an attempt to reduce accumulated debt and raise capital for future development in the U.S. .

New Zealand

Another early adopter of automatic, New Zealand's first exchanges were installed at Auckland and Wellington in 1913 and Christchurch in 1918 or 1919. When WW1 interrupted supplies, the New Zealand Post Office began ordering from Automatic Electric in the U.S. By 1922 there were nearly 6000 lines of Strowger installed, although the NZPO also bought BTMC's Rotary equipment quite heavily after the War. This was fitted with an unusual dial with the numbers reversed, to distinguish Rotary parts from Step dials. It was phased out in the 1920s, but a standardisation program in the 1950s saw a number of exchanges reequipped with reverse dials.

By the 1950s finance restrictions made it impossible to get any more Rotary equipment so they standardised on step equipment until electronic and crossbar exchanges came into service.

Portugal

ATE supplied moulds and designs for Portugal in 1950/51. The local company Automatica Electrica Portuguesa was largely financed by ATE. At this time the ageing Strowger switch was being opposed by Standard Electric's Rotary system, now refined from the early BTMC system. Overseas deals like Portugal were seen as a way of heading off Standard Electric's influence.

References:

Websites as noted in the text

Atkinson, Michael M "*The State, Business and Industrial Change in Canada*" University of Toronto Press 1989

MacMeal Harry B "*The Story of Independent Telephony*" Independent Pioneer Telephone Association 1934

Noam, Eli M "*Telecommunications in Europe*" Oxford University Press 1992

Hugill, Peter J "*Global Communications Since 1844*" JHU Press 1989

Lof Thomas C. "*125 Jaar Bellen met Bell*"

Emerson, A "*From Strowger to System X - The History of the Edge Lane Plant in Liverpool*" 1989, text available at http://strowger-net.telefoonmuseum.com/tel_hist_edgelane.html#chapter8

Pohl, Hans "*Competition and Cooperation of Enterprises on National and International Markets (19th-20th Century)*" Franz Steiner Verlag 1997

Australian Academy of Technological Sciences & Engineering "*Technology in Australia 1788 - 1988*" <http://www.austehc.unimelb.edu.au/tia/533.html>

Australian Post Office "*Telephony V*" 1952

Rens, Jean-Guy transl. by Roth, Kathe "*The Invisible Empire - A History of the Telecommunications Industry in Canada, 1846-1956*" McGill - Queen's Press

Brash Donald T "*American Investment in Australian Industry*" Harvard University Press 1966

[<< BACK](#) To Automatic Electric History

[NEXT >>](#) To Automatic Electric Telephones