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# **Materiality, modernity and space: the British banks and their computer centres, 1961–1963**

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British banks in the 1950s were conservative, restrained and non-competitive. They were also early adopters of large-scale electronic computing technology. In contrast to their behaviour in business, their appropriation of this technology was ambitious, competitive and prone to excess. Between 1961 and 1963, the banks deliberately constructed their first computer centres as sites for public display and saw their computers as symbols of their status. The spatial demands of the computer required a first-time dislocation of customer accounting from branch to computer centre and this presented the banks with an ideal opportunity to generate publicity and differentiate themselves from their competitors. A number of computer centre “performances” were held in the West End of London for invited guests, and one went as far as claiming that its computer was at the heart of the “most advanced bank book-keeping system in the world”.<sup>1</sup> Arranged to inform as well as impress, inside the computer centre, the

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<sup>1</sup> Barclays Bank, “No. 1 Computer Centre Press Release” [courtesy of Jim McClymont], 3 July 1961, 1. Elements of this press release, including the claim of a “world first” were reproduced in a number of

computer and its peripherals were colour coded to help explain function while their operators were shown working in an environment of clinical efficiency. Where technologies were immaterial or opaque, for instance the computer's programs or customer account details stored on magnetic tape, they were made visible by drawing attention to their modern qualities such as speed, capacity, accuracy and size.

Emphasising the materiality of the computer enhanced by its material setting was nothing new – IBM had done this with its proto-computer, SSEC (Selective Sequence Electronic Calculator), in 1948<sup>2</sup> – but what was interesting about the British banks was the way they in which they did this whilst at the same time upholding 400 years of conservatism and tradition. The new space of the computer centre and the established space of the branch were like the two faces of Janus, looking forwards and backwards at the same time. The computer centre looked firmly towards the future, while the branch looked cautiously behind.

The computer centre modernity constructed by the banks was a world away from the term “discreet modernism” that Jon Agar uses in *The Government Machine* to describe the British government's use of computing technology at the same time. The state's use of technology in the 1950s and 1960s is characterised by Agar as discreetly modern: hidden away from view and opaque.<sup>3</sup> In contrast, at their computer centres, the banks made their technology as transparent as possible in order to serve as highly visible symbols of their aspirations towards the status of technological innovator amongst the banks at home and abroad. The banks' computer centre modernity was a conspicuous modernism.

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national and international publications. See, for example, nationally, *The Banker* 111 (August 1961): 521, and internationally, “Centralized Book-Keeping”, *Data Processing* (January–March 1962).

<sup>2</sup> Martin Campbell-Kelly & William Aspray, *Computer: A History of the Information Machine* (Basicbooks, 1996), 115; Thomas Haigh, ‘The Chromium-Plated Tabulator: Institutionalizing an Electronic Revolution, 1954-1958’, *IEEE Annals of the History of Computing* 23, no. 4 (2001), 87.

<sup>3</sup> Jon Agar, *The Government Machine: A Revolutionary History of the Computer* (MIT Press, 2003), 424–430.

In this paper, I combine visual, oral and written sources to explore the conspicuous elements of bank computer centre design and the sociomaterial ensembles within to show how the centres were presented as homes for a computer-led orchestration of modern technologies and modern work whilst important notions of tradition were upheld in the branch. Examining the relationship between materiality, modernity and space, I consider the significance of the bank computer centre as both an object and space of technology and show how it was co-produced by the material demands of a computer, the requirements of those working within its walls, a technology consumer determined to make a statement of newfound modernity.

I begin my analysis by emphasising the importance of the spectacles that were the centres' opening ceremonies and highlight elements of the buildings' form that reveal their multifaceted purpose. I show how both the visibility and invisibility of technology and computing work in the computer centres could be constructed to symbolise modernity for the banks, and investigate how this was communicated to the branches and further afield. This vision of modernity was not uncontested, however. Through a look at external perceptions of the centre, from customers and competitors alike, and the perceptions of those working within and at connected branches, the building's ambivalent meanings are revealed. For some, the building was a wonder to be admired for others it was a less-than-ideal working home, for others largely an irrelevance, and for others still it represented a destruction of cherished values.

## **Ceremonies by design**

At the beginning of the 1960s, there were eleven clearing banks in England and Wales split by the press into two groups, dubbed the "Big Five" and the "Little Six", according to their size.<sup>4</sup> The "Big Five" consisted of Barclays, Lloyds, Westminster, the Midland,

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<sup>4</sup> G. C. Norman, *Banking* (Clarke, Doble and Brendon, 1962), 44–46.

and the National Provincial, which were all headquartered in London. At the head of the “Little Six” was Martins from Liverpool and the Manchester-based District Bank. Together the eleven banks operated as a cartel restricting competition and refusing new entrants.

Generating publicity through technological “firsts” was a common device employed by all of the banks. Prior to the opening of “the first computer centre for banking”, there had been the “first processing of customer accounts by a computer” (Martins), the first use of Closed Circuit Television (CCTV) to link branches and the first drive-in bank (Westminster), the first use of telecommunications between branch and accounting centre (Bank of Scotland), and the list goes on.<sup>5</sup> As well as a source of publicity these were a source of pride for the banks’ employees.<sup>6</sup> What differentiated the computer centre from those firsts that had gone before was that it was a space that could court attention on opening day and beyond.

The first of the banks to open a computer centre, beating Martins to it by a month, was Barclays. At an opening ceremony on 4 July 1961, the Postmaster General, the Right Hon. Reginald Bevins MP, was invited to ceremoniously open the new centre. He did so not by cutting a ribbon with scissors in the traditional manner, but by “cutting an invisible ray with his hand”.<sup>7</sup> When his hand passed through the infra-red beam the lights in the centre were automatically brought to life and the building was declared officially open. For the invited guests watching, this futuristic act was an apt conclusion to a ceremony that had radiated Barclays’ newfound modernity. Behind the scenes, however, more traditional methods were still on hand. One of the computer centre

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<sup>5</sup> Martins Bank, “Enter Pegasus”, *Martins Bank Magazine* (Spring 1960): 12. Westminster Bank, “Television and Westminster Bank”, *Westminster* 53, no.2, 11; Barclays Bank, “The Computer Centre Opens”, 253.

<sup>6</sup> Brenda Lincoln, telephone interview with author, 21 July 2008.

<sup>7</sup> *Ibid.*, 252.

technicians was carefully watching as the MP's hand passed through the beam, ready to throw the power switch in case the centre did not automatically light up.<sup>8</sup>

The Postmaster General's presence was symbolic. His was the ministerial position responsible for the General Post Office (GPO), the organisation in control of all communications that took place outside the walls of any building in Great Britain, and Barclays' first computer centre was a showpiece for telecommunications as much as it was for computing technology. Westminster Bank, which opened the first British Magnetic Ink Character Recognition (MICR) cheque clearing centre in September the following year, invited the Chancellor of the Exchequer, Reginald Maudling, to perform its ceremonial duties.<sup>9</sup>

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<sup>8</sup> Davey-Thomas, interview with author, Penzance, 15 October 2008.

<sup>9</sup> Royal Bank of Scotland Group Archive (hereafter RBSGA)/NWB/10044/R Rev Jun 86-93, "Computers in Nat West", undated.



**Figure 1. The Postmaster General cuts the infra-red beam to officially open Barclays No. 1 Computer Centre on 4 July 1961. Photograph courtesy of Barclays Group Archives.**

Barclays' opening ceremony took place in its computer centre's cavernous reception area, a massive space framed by white walls, a black granite floor, and a white ceiling supported by simple unadorned large columns (see Figure 2). This was the building's entry point and created a first impression that set the tone, given the restrictions of the building's facade. Stretching along the length of one wall was a specially commissioned 100ft three-dimensional showpiece mural.



**Figure 2. The spacious reception area viewed from the entrance to Barclays No. 1 Computer Centre. The specially commissioned 100 ft. 3D mural can be seen along the wall to the left. Photograph courtesy of Barclays Group Archives.**

The large and impressive reception area was the most visible indication that incorporated into the building's interior design were a number of features not related to the requirements of the bank's computer or its computer centre staff. The computer's requirements were catered for in terms of power, temperature, humidity and dust control, but these primary concessions to the computing equipment, like the hand on the switch that provided a backup for the opening ceremony's invisible ray, remained out of sight. Cables and ducts that brought power and air were hidden behind false floors and ceilings. On show were indicators that the building's function was about much more than simply meeting the computer's environmental needs; it also had to function as a suitably impressive "first of its kind" building for a bank wishing to demonstrate its technological prowess. Almost embarrassed by some of the indulgences made to visitors



in the building's design, the bank's chairman concluded by pointing towards simpler future computer centres.

The arrangement of the building's internal space ensured that "allowance had been made in the layout of the centre for the reception of a steady flow of visitors".<sup>10</sup> On the day of the opening of the Midland's computer centre in January 1963, visitors were bank directors at board and local levels, manufacturer and contractor representatives, the national and trade press, and senior representatives from other banks. Afterwards, typically they were managers and members of staff, representatives from other banks and businesses at home and abroad, schools,<sup>11</sup> and delegates from an international conference on banking automation.<sup>12</sup>

Barclays architect had allocated space for the practical, but these rooms were secondary to the main central space that was the building's reception. The reception area dominated the building's interior design and other internal spaces were subordinate to it in a Corbusian hierarchy. Just as Le Corbusier had designed his villas in the 1920s to have as their largest space the living room where people could relax and be entertained, Barclays designed its reception area as the largest space in the computer centre to fulfil the same purpose. The centre's programmers affectionately named reception "The Elephant House" and "Stonehenge", both names a reflection of its size in relation to their own working space, and its function as a meeting place for groups of gawking visitors that made it akin to the entrance of a tourist attraction.<sup>13</sup>

Leading off the reception area were two rooms to house the programmers (senior and junior) and other internal workspaces included the assistant manager's

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<sup>10</sup> Barclays Bank, "The Computer Centre Opens", 253–254.

<sup>11</sup> Hong Kong Shanghai Banking Corporation Group Archives (hereafter HSBCGA)/0147/001, "West End Computer Centre's Visitors' Book", 23 January 1963.

<sup>12</sup> "Bank Automation Conference", *The Times*, 10 September 1962.

<sup>13</sup> Jim McClymont, interview with author, Bethersden, 4 September 2008. David Bound, e-mail message to author, 19 September 2008.

office, maintenance workrooms, a lecture room for on-site training, an office for the on-site manufacturer's engineers, and a mock up of a typical branch.<sup>14</sup> Repurposed from a furniture showroom, Barclays' building was far from ideal as a working computer centre.<sup>15</sup> The showroom's relatively low ceiling height, typical of a built environment that predated air-conditioning, meant the introduction of false floors and ceilings to conceal cabling and ducts left the building feeling rather cramped in those spaces outside of the reception. <sup>16</sup> Only three years after opening Barclays' building was judged to have served its purpose and the initial concessions made in the building's design for visitors and prestige were re-classed as "difficulties in continuing to use [the] premises as a Computer Centre".<sup>17</sup> There was not enough usable space in the centre to accommodate the extra computing equipment required to extend Barclays' automation efforts,<sup>18</sup> and it was obvious that the needs of those working at the centre, and the building's long-term future, had come second to the impact Barclays intended it to make.<sup>19</sup>

## **Computer centre modernity and banking tradition**

The easiest route to computerisation and centralised accounting was generally considered by the banks to be the consolidation of the accounts of a cluster of branches

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<sup>14</sup> Barclays Bank, "The Computer Centre Opens", 254.

<sup>15</sup> Records in Camden Local Archives show that the premises previously belonged to Oetzmann and Co. House Furnishings, a long established furniture and piano retailer. The banks were in the habit of acquiring property from bankrupt customers and this is possibly the manner in which they acquired the lease for this building; Jean Perkins, telephone interview with author, 21 July 2008.

<sup>16</sup> Jim McClymont, interview with author, Bethersden, 4 September 2008; Jean Perkins, telephone interview with author, 21 July 2008; Davey-Thomas, interview with author, Penzance, 15 October 2008.

<sup>17</sup> Barclays Group Archive (hereafter BGA)/80/2827, Arthur H. Foley, "Greater London Computer Centre", 14 August 1964, 4.

<sup>18</sup> Alan Duncan, e-mail message to author, 11 September 2008.

<sup>19</sup> The importance of the initial statement a building has to make over its practical long-term use is not uncommon in architecture. See Stewart Brand, *How Buildings Learn: What Happens After they are Built* (Penguin, 1995), for a discussion of workable alternatives.

close to a central point.<sup>20</sup> A site near to head office was seen as the most obvious location for a first computer centre building. Head office was an important and well-established central location for an organisation that conducted its business through the decentralised structure of the branch. It was the meeting place for the bank's board and an obvious concentration of power. However, the computer centre's interior design embodied modernist architectural concepts that were in sharp contrast to the classical architecture of head office and the banking hall. Traditional bank architecture symbolised stability, tradition, trustworthiness and security to reassure a predominantly middle-class clientele.<sup>21</sup> The computer centre employed a number of modernist architectural devices to accentuate the new and used its air of clinical efficiency to emphasise trust and security. Even by the standards of the most recently built branches the bank computer centre was a thoroughly modern and even futuristic place.<sup>22</sup>

Martins Bank's first computer centre was a converted basement in a building adjacent to its Liverpool head office that had previously been the home of the Liverpool

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<sup>20</sup> Lloyds Bank Group Archive (hereafter LBGA)/Winton File: Computers, Ron H. Ball [chief manager – data processing], "Computers in Banking Notes for a Talk", 7–8.

<sup>21</sup> Margaret Ackrill and Leslie Hannah, *Barclays: The Business of Banking, 1690–1996*, 103. Modern architecture was established in Britain by the middle of the 1950s, but banks were conservative in their approach to architectural change. Bank branches typically projected an image of strength and stability in order to engender customer trust. For an introduction to modern architecture in post-war Britain see Nicholas Bullock, *Building the Post-war World* (Routledge, 2002). For an introduction to ideas of space and function in architecture see Hazel Conway and Rowan Roenisch, *Understanding Architecture: An Introduction to Architecture and Architectural History*. (Routledge 1994), 55–81. On changing styles in bank architecture see Robert Nisbet, Anne Tucker and Susan Wagg, *Money Matters: A Critical Look at Bank Architecture* (McGraw-Hill, 1990) and Wim de Wit's review, Wim de Wit, "Review", *The Journal of the Society of Architectural Historians*, 50, no. 4 (1991): 450–452. For more recent work on the relationship between form and function in finance, see: Elton McGoun, "Form, Function, and Finance: Architecture and Finance Theory", *Critical Perspectives on Accounting* 15, no. 8 (2004): 1085–1107.

<sup>22</sup> Barry Matthews, interview with author, Bollington, 3 October 2008; David Parsons, interview with author, Manchester, 7 August 2008; David Bound, e-mail message to author, 19 September 2008.

Commercial Reference Library.<sup>23</sup> Martins' head office and flagship branch was a palatial symbol of power that had been built in the 1930s.<sup>24</sup> The proximity of the new computer centre to the bank's impressive head office prompted the press, presumably primed by Martins, to explore the significance of the old alongside the new. A report of the computer centre's opening in the *Illustrated Liverpool News* drew its readers' attention to the juxtaposition of computer centre modernity with banking tradition. The article, "Traditions: A Modern Approach", was accompanied by two photographs, one showing the grandeur of the interior of Martin's head office (Figure 3) and the other the clean modernist lines inside the new computer centre (Figure 4). The old was the neo-classical marble interior of the banking hall "that exemplifie[d] in the permanence of its structure the centuries of traditions of banking which will endure for centuries to come" through its arches and columns. The new was the bright modernity that was the inside of computer centre basement, all straight clean lines lit by electric lights.<sup>25</sup>

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<sup>23</sup> Martins Bank, "Enter Pegasus", 10–12; Martins Bank, "Pegasus Arrives", *Martins Bank Magazine* 16, no. 2 (Summer 1961), 19. The term head office can be slightly misleading. This was not a single office, nor usually just a single building, but typically multiple offices spread within and around very large, and suitably impressive neo-classical buildings. Typical head office functions were payroll, personnel and inspections.

<sup>24</sup> Ackrill and Hannah, *Barclays*, 171–184; George Chandler, *Four Centuries of Banking Volume 1* (Martins Bank Ltd, 1964), 489. The building has listed status.

<sup>25</sup> "Traditions a Modern Approach", *Illustrated Liverpool News* 3, no. 24, May 1962.



**Figure 3.** The banking hall of Martins Bank Head Office, Water Street, Liverpool. Source: "Traditions: A Modern Approach", *Illustrated Liverpool News* 3, no. 24, May 1962.



**Figure 4.** The computer room, Martins Bank Computer Centre, Derby House, Liverpool. Source: "Traditions: A Modern Approach", *Illustrated Liverpool News* 3, no. 24, May 1962.

In the branch technological change largely occurred in the back office. Here, out of customer sight, the new worked in concert with the old. To enable computerisation of

customer accounts an accounting machine was retained and a paper tape punch (see Figure 5) added to produce paper tape as a by-product of the “waste” process.<sup>26</sup> This paper tape output formed the computer centre’s input and was typically carried from branch to centre by hand.



Figure 5. An NCR accounting machine on the left linked to a paper tape punch on the right. Source: P. W. Mace *Visible Record Computers* (Business Books, 1974), plate 22.

## Technologies on display at the centre

At the computer centre, new technologies were firmly on display. Specially designed viewing rooms with near floor-to-ceiling glass walls provided an uninterrupted view of the computer and its peripherals.<sup>27</sup> After the opening ceremonies the first visitors were led on a tour around the computer centre building where elements of this new data

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<sup>26</sup> The origins of the term “waste” are uncertain, but it was used to describe the audit trail made of all entries made to customer accounts in a branch in one day.

<sup>27</sup> Barclays Bank, “No. 1 Computer Centre Press Release”, 7.

processing system were fully operational but also clearly intended for public display. Barclays portrayed its computer as the leader in an orchestration of technology from a number of different manufacturers. Its EMIDEC computer was connected to Ampex magnetic tape drives, Ferranti FR 300 photo-electric paper tape readers, and Creed 3000 paper tape punches, which all served as input and output devices and were also housed in this first computer room.<sup>28</sup> The different units in the computer room were colour coded according to their purpose and these colours were used to help describe to the visitors in the viewing room how each operated as part of the data processing whole. Visitors were invited inside to gaze comfortably from the insulated viewing room upon the flashing lights of the computer, the busy peripherals, and the smooth efficiency of the machine attendants operating within. The Midland, with another computer centre in London's West End, even went as far as listing a number of "performances" in its instructions for the opening of its first computer centre.<sup>29</sup>

Barclays had a trump card to play with the technology it placed inside its computer centre. The banks generally associated themselves with the prestige of computing and telecommunications technology by proxy, but, in a tangible example of a consumer turned producer, Barclays demonstrated a piece of equipment in the centre that had been wholly conceived, designed, and prototyped by members of its own staff. This was the Input Checking Equipment, or ICE machine. Barclays drew special attention to this technology in its press release:

At intervals the punched paper-tape is transmitted over the teleprinter lines to the Centre, where a duplicate tape is automatically produced. Before these tapes are

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<sup>28</sup> Barclays Bank, "No. 1 Computer Centre Press Release", 3 July 1961; Barclays Bank, "Operator's Manual No. 1 Computer Centre" [courtesy of Barry Matthews], c. 1965; David Parsons, interview with author, Manchester, 7 August 2008.

<sup>29</sup> HSBCGA/0147/001, "Instructions for Running West End Computer Centre at Official Opening", 23 January 1963.

passed to the computer they are checked electronically to detect very occasional punching or transmission errors. The computer would in fact find these errors itself, but by disposing of these errors in advance the introduction of this input checking equipment (ICE) allows the computer to operate at its greatest efficiency. ICE was designed by a member of the Bank's staff, as there was no equipment on the market, or under development, which would perform this checking function, and considerable interest has been aroused in the data processing field by this machine.<sup>30</sup>

The ICE machine performed a simple but important function. From opening at 10 a.m. until after closing at 3 p.m. each branch connected to the centre would punch out five-channel paper tape that contained the day's debits and credits to be applied to customer accounts. These transactions would be transmitted in batches of fifty or a hundred across the GPO line to the computer centre where they would be reproduced as paper tape input for the EMIDEC. Two members of Barclays' staff at the computer centre, Davey-Thomas and Doug Pearce, designed and built a device for checking the transmitted paper tape. Both men, like many of the early bankers recruited into computing, were keen electronic hobbyists with interests in amateur radio and electronics consolidated during a period of National Service. Having the requisite technical skills, and understanding that what was required was really a simple parity checker, the two men built an initial working prototype of the ICE machine using mechanical relays. The prototype machine was slow, but it proved their concept. Barclays then partnered with a small electronics firm, RDL, to bring a transistorised version of the machine into production. These transistorised ICE machines were the ones demonstrated in place and fully functional on the centre's opening day.<sup>31</sup>

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<sup>30</sup> Barclays Bank, "No. 1 Computer Centre Press Release".

<sup>31</sup> Davey-Thomas, interview with author, Penzance, 15 October 2008; Barclays Bank, "No. 1 Computer Centre Press Release".



Something that the visitors' attention was not drawn to was Barclays' often more low-tech solution to error correction. As batches of entries were received during the day they would be read in and validated by the ICE machines. If a machine detected a parity error it would stop and mark the tape highlighting the position of the error. It was then an operator's job to perform the necessary error correction. Sometimes this involved a retransmission from the branch, but usually it was no more than a case of the operator flicking the tape to dislodge a stubborn chad left behind from an incomplete perforator punch.<sup>32</sup>

As part of the complete visitor experience, Barclays' guests were given a glossy pamphlet entitled *Barclays Bank Limited: Our First Computer* which emphasised some of the less visible aspects of the new computer system. The leaflet extolled the efficiency of the new computing system in terms of its storage capacity and the speed at which it could deal with information. The computer did everything "very quickly". Its high speed was portrayed as the essence of the modern when compared to a traditional branch-based book-keeping system. High speed was a feature of earlier modern technologies such as aeroplanes and automobiles in the twentieth century, and the telegraph and the railway in the nineteenth.<sup>33</sup>

**It can store a lot of information:** the entries on 9000 full ledger sheets can be stored on 1 reel of magnetic tape, 3600 feet long. **It can read information from paper tape very quickly:** nearly 700 entries in 1 minute. **It can sort information very quickly:** 1000 entries can be sorted in 45 seconds. **It can perform arithmetic very quickly:** a credit can be added to a balance in 140 millionths of a second. **It can make simple decisions:** answering the question, 'Does the balance

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<sup>32</sup> Davey-Thomas, interview with author, Penzance, 15 October 2008.

<sup>33</sup> Bernhard Rieger, "'Fast Couples': Technology, Gender and Modernity in Britain and Germany during the Nineteen-Thirties", *Historical Research* 76, no. 193 (2003): 371.

exceed the limit?' takes 410 millionths of a second. **It can punch out paper tape very quickly:** a statement sheet of 28 entries is produced in 4½ seconds.<sup>34</sup>

The pamphlet even suggested the new computer system was capable of simple decision making such as that done in a branch. But the banks were keen to stress to branch managers at branches that they would always remain in control of their customer accounts. Head office circulars were sent out to branch managers to set an appropriate tone for the introduction of the new computerised system. One circular stressed that a preservation of the power relationship between the branch and the computer centre was central to the bank's automation strategy:

[I]t is cardinal to all our thinking that the branch is the master and the computer centre the servant. So, as ways and means of improving customer services or the service to branches begin to be seen, the computer system will be subjected to O. & M. [Organisation and Methods] scrutiny just as our conventional services and systems have been and are being.

The branch manager continues to be responsible for *all* decision making; and the management team at the [computer] centre will never be without a man who has had experience in branch management. [...] [W]e shall be surprised and disappointed if greater distances should impair the excellent team spirit which exists today between staff at computer branches and at our No. 1 Centre.<sup>35</sup>

This was an illusion of control to some extent. It was with head office that ultimate responsibilities lay, but the removal of accounts from branch to computer centre had the potential to upset an existing balance of power. In order to preserve this balance, at first

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<sup>34</sup> BGA/B262, *Barclays Bank Limited: Our First Computer*, June 1961 [emphasis in original].

<sup>35</sup> BGA/80/2827, Arthur H. Foley, "The Automation Program", 2 December 1965, 10 [emphasis in original].

the branch manager was firmly master and computer centre servant as the following example of statement production at Barclays illustrates. In the branches overdrawn balances had always been represented in red and this was a feature branch managers were adamant remained in place when a branch was automated. The high-speed Anelex printers at the centre could not make use of a black/red ribbon whereas the teleprinters in the branch could. Consequently statement production was initially done via a teleprinter in the branch. Although this was slower than printing at the centre, it did preserve an existing structure and also allowed Barclays to further extol the virtues of its advanced telecommunications system where no paper at all passed between branch and centre. However, over time, existing structures formed around the branch were replaced with new ones created from the centre. Some time before April 1963 printing was moved in-house to the computer centre as the teleprinters struggled to keep pace with statement volume and branch managers were finally persuaded to accept DR next to an overdrawn balance in place of red print.<sup>36</sup>

## **Communicating computer centre work**

The tour of the computer centres was a show of computer and telecommunications strength, but it was also a demonstration of its controlled operation. In the transparent computer rooms visitors could see the computer operators working within and hear their work explained in relation to the machines they were tending. The tour also involved communicating to visitors the role of the banks' programmers and their relationship to computer centre technology.

The programmers, like the operators, were all former bank clerks who had shown a particular aptitude for working with machines. These were typically those clerks who worked in the back office of a branch or its machine room. The

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<sup>36</sup> David Prior started at No. 1 Computer Centre in April 1963 and printing was then done at the centre, see David Prior, interview with author, 15 September 2008.

programmers' mental labours were made tangible for visitors in the form of flowcharts and machine code that were put out on the computer centre walls for display. The programmers' rooms contained exhibits of the "extremely detailed instructions" that its specially trained staff had been responsible for preparing. This display served three purposes. It communicated to visitors just what it was this new breed of banking staff, the programmer, did; it stressed the banks' new role as a technology producer, not just a consumer; and most importantly it also dispelled any notion of the computer being an "electronic brain" doing the thinking of its own accord. Impressive though the banks' new technology was, they had to reassure bank staff and customers that there was no danger of it making decisions on customer accounts of its own accord. It could only do what the programmers told it do, and visitors were reminded that the banks' programmers, like their computer operators, were all bank clerks first and foremost who knew the business of banking. It was only atop a solid set of banking foundations that specialist programmer and operator training had been built.<sup>37</sup>

The programmers and operators became part of the ongoing visitor experience. On a regular basis, important visitors, including representatives from other banks, would be met in the impressive reception area by the head of Barclays' mechanization who would pause on the way to the computer rooms by the door of one of the white ceilinged, white walled offices. He would quietly open the door and point inside the programmers' room whispering to the visiting crowd, "these are our programmers". As visits became embedded in the weekly life of the centre, one of the centre's programmers adopted the role of computer centre tour guide, skilled at communicating the workings of the computer centre to a non-specialist audience.<sup>38</sup>

Five years after the opening of Barclays No. 1 Computer Centre, a popular BBC Radio programme, *Have A Go*, was broadcast from Barclays' head office at nearby 54

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<sup>37</sup> Barclays Bank, "No. 1 Computer Centre Press Release" [courtesy of Jim McClymont], 3 July 1961.

<sup>38</sup> David Parsons, interview with author, Manchester, 7 August 2008.

Lombard Street.<sup>39</sup> The programme's host, Wilfred Pickles, asked the centre's manager, Donald Johnson, if Barclays' "fantastic machine" could result in its bank clerks being "put out on the dole". The radio, like television and the press, enjoyed exaggerating the possibilities of computers displacing workers from their jobs.<sup>40</sup> In 1956, the National Union of Bank Employees (NUBE) had signposted its intentions to resist the introduction of computers if they were to displace staff and they sought assurance that staff affected would be retrained and deployed elsewhere.<sup>41</sup> As the bank had done previously, Johnson denied any possibility of redundancies and restated the main reason for using the computer was to "absorb additional work". He reiterated a spatial and staffing crisis motif as the cause for computerisation and cast the computer as the saviour rather than the villain.

## **The customer response**

A radio broadcast such as *Have A Go* was an attempt to manage customer as well as staff perceptions. Barclays also issued each customer affected with a modified version of the pamphlet issued to computer centre guests and bank staff. The pamphlet, entitled *Our First Computer*,<sup>42</sup> presented automation at the computer centre as the only practical and sensible solution to the growing cost of providing a branch banking service. The key advantage of electronic book-keeping by computer was stressed as a reduction in spiralling costs associated with staff, premises, paperwork and equipment. The response to the question "why a computer?" was that without a computer "it might well be that in a few years' time we should be unable to provide you with an adequate banking service at a cost which you could reasonably be expected to pay". Barclays pressed home in its

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<sup>39</sup> BBC Radio, *Have a Go*, first broadcast 13 December 1966.

<sup>40</sup> Mumford and Banks, *The Computer and the Clerk*, 13.

<sup>41</sup> *Guardian*, "Automation in Banking Union Not Obstructive", 15 May 1956.

<sup>42</sup> RBSGA, Barclays Bank, *Our First Computer*, June 1961.

direct customer communications and a number of newspaper and magazine advertisements that computers would contain and reduce the cost of banking and also allow branch staff to provide a more personal service.<sup>43</sup>

As part of a wider discourse, anthropomorphic representations of computers were a common way of explaining computers that those unfamiliar with them could understand. The “electronic brain” had been a powerful, if misleading, early metaphor used by the popular press to convey the electronic computer concept to a wider public audience.<sup>44</sup> In a number of advertisements in business magazines and newspapers the banks recast their computers not as giant brains that could do thinking of their own accord, but as “workhorses” that took away the drudgery of accounting from branch staff now freed up to provide a service that was “proportionately more efficient”.<sup>45</sup> Like a “workhorse” the computer only did what it was directed to do, and customers were reassured that accountable humans always remained in control of their money.

But not all the banks’ customers were convinced that the computer was a faithful servant or that technological progress equated directly with increased customer service. The comic writer, H. F. Ellis, articulated his response to the introduction of computerised accounting at his branch in the humorous polemic, “Give Me Back My Ledger”, first published in *Punch* in March 1962. In his article, Ellis bemoaned the impersonal materialities of computerised accounting:

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<sup>43</sup> RBSGA, *Our First Computer*, June 1961. There were two versions of this booklet: one intended for staff and visitors from other organisations, entitled *Barclays Bank Limited: Our First Computer*, and one intended for the bank’s customers, *Our First Computer*.

<sup>44</sup> Thomas Lean, “From Mechanical Brains to Microcomputers: Representations of the Computer in Britain, 1948-1984, in *Science and its Publics*, Alice Bell, Sarah Davies and Felicity Mellor, eds. (Cambridge Scholars, 2008), 182; Dianne C Martin, “The Myth of the Awesome Thinking Machine”, *Communications of the ACM* 36, no. 4 (1993): 120–133. See also, Thomas Lean, “‘The Making of the Micro’: Producers, Mediators, Users and the Development of Popular Microcomputing in Britain (1980–1989)”, (PhD Diss., University of Manchester, 2008).

<sup>45</sup> For example see “Miss Wolveridge is Now Handling 40,000 Accounts” [display advertising], *Economist*, 8 July 1961, and “Our Computer has a Twin” [display advertising], *Economist*, 5 January 1963.

Punched cards are old hat now, almost cosy compared with the punched tape that has superseded them. And that is not the worst. More bloodless still is the magnetic tape on which my vital statistics are, as they put it, “stored” by the time a computer has got to work on them. I am no longer a series of holes, which are at least visible, but a string of utterly intangible positive and negative magnetisations, of pluses and minuses, of noughts (in the code language of this dreadful world) and ones. I am reduced to the lowest known common multiples. I’m binary by God.

The article undoubtedly entertained its readers, but it also re-awakened the importance of trust in the very personal relationship between customer and bank potentially undermined by automation efforts. Ellis criticised the bank and the computer for the negative impacts associated with its seemingly simultaneous visibility and invisibility. The necessary addition of account numbers to the bottom of customer cheques he saw as a constant visible reminder that a computer was now in control of a customer’s account.

The addition of account numbers also had an effect on common banking customs, as a cheque was now only supposed to be used against the account on which it was issued. In theory this meant the practice of borrowing a blank cheque from a friend when you reached the end of your chequebook had to stop. In practice, however, the bank, sensitive that these stricter controls might alienate some of its customers, provided some leeway for the more stringent requirements of computerised banking. While customers grew used to the changes, it allowed cheques from other accounts to be used providing that the pre-printed name and account number were deleted. When using paying in slips customers who did not write on their account number were not requested to do so, but instead a member of staff would look up the account number

against a list of names held in a card index and fill in the details for the customer.<sup>46</sup> This was a period of change for customers too who were set in their banking ways, and the much touted increased personal service afforded by the computer was needed for this transition period. Customer perceptions were managed so that the requirement for customers to now refer to themselves by number in certain scenarios did not in fact mean that they were merely a number to the bank.<sup>47</sup>

To Ellis, the visibility of the computer's presence in the form of a customer account number was an irritant, but the growing invisibility of customer accounts was a bigger issue evoking both practical and emotional concerns. Using magnetic tapes to store customer accounts was seen as a long way away from the easy readability of the branch ledger. Whilst computer media such as punched cards and paper tape were touchable with the holes representing account entries clearly visible, information on magnetic tape was both untouchable and invisible. With the ability to read this new medium now resting firmly with the computer, customer trust now had to be placed in machine as well as man.<sup>48</sup>

Furthermore, the creation of a special centre to house the computer served to elevate its status, and holding customer account information within the centre's walls removed the account from the long-established trust and security of the branch. In spite of efforts by the bank to explain to customers how the links between branch and computer centre would work, the presence of a number of devices involved in establishing these links brought to mind more opportunities for failure. Ellis even speculated on the possibility of random numbers being generated like those from ERNIE

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<sup>46</sup> BGA/B262, *Barclays Bank Limited: Our First Computer*, June 1961.

<sup>47</sup> A. W. Brooks, "The People Concerned in Automation", in *Automation in Banking* (London: The Institute of Bankers, 1965), 20, expresses general concerns regarding depersonalisation, and more specifically that the requirement for customers to include the account number on a credit slip is "apt to create in the customer's mind that he [sic] is merely a number".

<sup>48</sup> H. F. Ellis, "Give Me Back My Ledger", *Punch*, 14 March 1962, 430–432.



(Electronic Random Number Indicator Equipment),<sup>49</sup> developed by the GPO and quickly established as part of British popular culture, in 1957, when it was first used to randomly draw the month's winning Premium Bonds. He also saw the computer centre and its contents as especially vulnerable to attack:

I see in my mind's eye the hooded representatives of a rival bank stealing into the Centre at dead of night with an enormous magnet and in an instant utterly demolishing all the records. Or they might feed false information to the computer, turning all my pluses to minuses and vice versa.<sup>50</sup>

Humorous, fanciful, and not wholly representative, the article does provide a useful articulation of the broader issues concerning customer trust, security, accountability, and personal service that the banks needed to address as they moved from the self-contained production unit of the branch into a distributed model of accounting that connected branch to computer centre. The banks were certainly aware that prominent vocal minorities like these could be disruptive and they sought not "to dismiss any criticisms of our system in a cavalier way" but instead to address customer concerns in order to remove resistance to the changes introduced by automation.<sup>51</sup>

## **Expansion and closure**

As the workload of the centres increased, the novelty of a computer centre may have been wearing a little thin, but the attractions on display expanded. At Barclays, a young programmer, David Parsons, programmed the EMIDEC to print out a history of the computer centre and then wrote a program that made novel use of the speaker built into

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<sup>49</sup> See Agar, *The Government Machine*, 427–429.

<sup>50</sup> Ellis, "Give Me Back My Ledger", 430–432.

<sup>51</sup> A. W. Brooks, "The People Concerned in Automation", 21.

the machine's operator control panel. EMI had originally provided this speaker to enable audible monitoring of a program's progress and for sounding alerts on successful program end or abnormal termination. But, assisted by EMI engineer John Prouse, an enterprising Parsons made use of the speaker to have the EMIDEC play a selection of carols to computer centre guests at Christmas time. The computer-generated music featured on the Jack de Manio *Today* programme broadcast on BBC radio.<sup>52</sup> Barclays' computer centre performance followed a tradition of computer-generated music that could be traced back in Britain to 1951 and the University of Manchester's Ferranti Mark 1 computer.<sup>53</sup>

The first computer centre for banking in Britain fell into disuse at the beginning of the 1970s and Barclays eventually sold the lease in 1974 to BC Facilities Ltd, a provider of banking services owned by the Hong Kong Shanghai Banking Corporation (HSBC). HSBC re-used the building in 1981 as a computer centre for its British Bank of the Middle East and then again in 1984 as a computer centre for the Hong Kong and Shanghai Bank.<sup>54</sup> No evidence remains of how these banks might have repurposed Barclays' computer centre space to their own ends. This is hardly surprising; computer centres had become a commonplace feature of banking in Britain in the 1980s, and the opening of another computer centre would have generated little publicity. But the beginning of the 1960s was a different era, when large-scale computers were new and

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<sup>52</sup> Jean Perkins, telephone interview with author, 21 July 2008; David Parsons, telephone interview with author, 21 July 2008; John Prouse, "Memories from John Prouse", <http://www.iansmith.myzen.co.uk/emidec/emihme.htm>, 10 March 2009. The speaker's purpose is described in "EMIDEC 1100 Computer", <http://www.emidec.org.uk/>, undated.

<sup>53</sup> Mike Hally, *Electronic Brains: Stories from the Dawn of the Computer Age* (Granta, 2005), 100–101; BBC, "Oldest' Computer Music Unveiled", <http://news.bbc.co.uk/1/hi/technology/7458479.stm>, 17 June 2008.

<sup>54</sup> See BGA/80/632, "Schedule of Title Deeds" and *Post Office London Directories*. The building was subsequently demolished and the site redeveloped as the UK headquarters for computer consultants Logica. Logica vacated the premises in 2009 and NHS Camden have moved in to house a new GP led health centre on its ground floor, see "First New GP Practice in Camden for a Decade Given the Go Ahead", <http://www.camden.nhs.uk/GPGoahead>.

exciting. The first computer centres were constructed as places that symbolised and conveyed a set of ideas and ideals as the banks set about realising a vision of modernity against a backdrop of hundred of years of banking tradition.

## **Conclusion**

Buildings can easily be taken for granted, as they become part and parcel of business infrastructure. The first bank computer centres had to be designed to meet the environmental needs of a new computer, but were also constructed to meet the broader overriding political needs of banking management. For the executives of the board, the computer centre was purposefully designed as a site of public display intended to maximise the banks' aspirations to the status as technological innovator. As the banks used the computer centre to forge a new organisational identity, they communicated this beyond the computer centre through connections that they made before, during and after its opening. Subsequent computer centres were much bigger and designed with less consideration for visitors and more consideration for computers and computing staff. Instead of allowing the first British computer centres for banking to fade into the background, this paper has kept them firmly in the foreground in order to offer insight into the meanings attached to these unique technological places.

The banks' presentation of the computer centre as a modern place was very different from Jon Agar's description of the British government's attitude towards the presentation of its computing technology. Agar reveals that the government was not only necessarily secretive regarding its wartime computing efforts, but also regarding those of its more public computing exploits in the 1950s and 1960s. His example is that of ERNIE, the random number generator used to determine the winning premium bond numbers. ERNIE was enclosed in lockable cabinets, its teleprinters covered, and its

output of a non-recognisable form. Agar shows this lack of transparency as being readily accepted by a public happy to place its trust in experts.<sup>55</sup>

The banks presented their technology in a very different manner. At its computer centre, Barclays demonstrated a conspicuous modernism that emphasised the materiality of its new technology enhanced by its material setting. Where technologies were immaterial or opaque, for instance the computer's programs, its information stored invisibly on magnetic tape, and the computer's inner workings, it made them visible by drawing attention to them as aspects of modernity. "Discreet modernism" did have a place in the bank, however. Bold representations of change at the computer centre stood in contrast to the lack of change made in the banking hall in the branch and in the branch manager's office. At these main sites of customer interaction, the preservation of long-established bank customs that engendered customer trust was an overriding concern. The bank's co-construction of modernity and technology therefore took place within what Bernhard Rieger has described as a "flexible tradition". Rieger characterised 1930s Britain as a country of "conservative modernity", a concept akin to Agar's "discreet modernism", that allowed the country to accept change whilst upholding important notions of tradition.<sup>56</sup> Barclays, like the other British banks, was built on these notions of tradition, and realised too that they had to be upheld. It did so like Janus, looking forwards and backwards at the same time. At the computer centre it looked firmly towards the future, while in the branch it looked cautiously behind. It had to, in order that the business of banking be preserved.

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<sup>55</sup> Agar, *The Government Machine*, 424–430.

<sup>56</sup> Rieger, "Fast Couples", 366.