



HAL
open science

Electronic “Ambassador”: The Diplomatic Missions of IBM’s RAMAC 305

Evangelos Kotsioris

► **To cite this version:**

Evangelos Kotsioris. Electronic “Ambassador”: The Diplomatic Missions of IBM’s RAMAC 305. IFIP International Conference on the History of Computing (HC), May 2016, Brooklyn, NY, United States. pp.165-180, 10.1007/978-3-319-49463-0_11 . hal-01620142

HAL Id: hal-01620142

<https://inria.hal.science/hal-01620142v1>

Submitted on 20 Oct 2017

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L’archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d’enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

Electronic “Ambassador”: The Diplomatic Missions of IBM’s RAMAC 305

Evangelos Kotsioris

Princeton University, Princeton, New Jersey, USA
ekotsior@princeton.edu

Abstract. This paper traces the “diplomatic missions” of the RAMAC 305 developed by IBM in California during the late 1950s and instrumentalized as an “animate” ambassador of American computing technology abroad. Specifically, this paper looks at IBM’s exhibit at the American National Exhibition in Moscow (July 1959) and Nikita Khrushchev’s tour to the IBM manufacturing plant in San Jose, California (September 1959) to argue that the RAMAC 305 was envisioned and designed as a modular system of combinable units and peripherals that could be easily—and quite literally—transferred around the world. Ultimately, this work demonstrates how the carefully choreographed exhibiting of Western computing power by American companies like IBM actively accelerated the participation of USSR in global treatises on the fair use of patented information technologies in the decades that followed.

Keywords. IBM · RAMAC 305 · Cold War · Watson · Khrushchev San Jose · Moscow

Like other stars from California, RAMAC went on tour, making personal appearances, attracting crowds of... customers in leading cities across the country. They saw the machine speed the flow of business information, taking credit rating, writing orders, taking inventories, adding accounts, figuring commissions; a machine that will keep the records of a business always current and instantly available.

Excerpt from IBM film: The Search at San Jose, 1958.¹

¹ The Search at San Jose, Presentation by International Business Machines Corporation, Photographed in San Jose California and Produced in New Jersey by New Film, Inc., 1958, 11:39.

1. Warm-Up Act

How is technology transferred? Both as a physical artefact and as intangible knowledge? What is actually transferred and through which channels? Who lays claims to it and who benefits from this process? In other words, what is to be lost and gained through such transfers? These are some of the main questions this paper will try to answer; a paper that traces the “diplomatic missions” of the RAMAC 305, a computer designed by the International Business Machines Corporation (IBM) in California during the late 1950s.



Fig. 1. Flying the RAMAC 305: An IBM 350 disk unit, weighing a bit over a ton, being forklifted onto a Pan American Airways operated Douglas freighter aircraft (most possibly a DC-6A), ca. 1956

For historians of information technology, IBM’s RAMAC (“Random Access Method of Accounting and Control”) computer holds a prominent position in the development of electronic data storage. It is commonly referred to as the first computer with a “hard disk” that allowed random access to large quantities of information; one that left behind a linear way of accessing data. The sizeable hard disk of the RAMAC 305 could hold five million characters (approx. 4.4MB), weighed a bit less than one ton, and was materially articulated as a rotating stack of aluminium

plates on which data could be magnetically stored and retrieved rapidly with the help of a head attached to the end of a mechanical arm. (Figures 1–3)

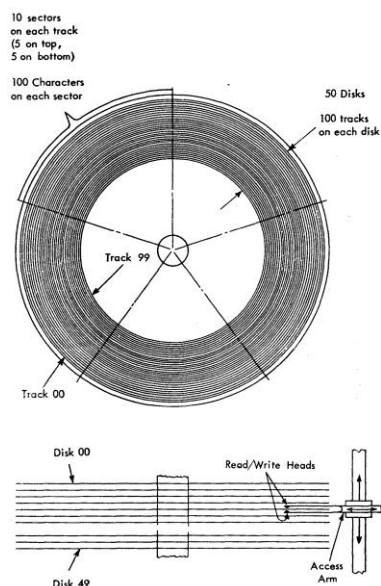


FIGURE 4. SCHEMATIC OF DISK STORAGE



Fig. 2. Schematic drawing of RAMAC’s memory platters, their vertical stacking on a rotating spindle and the read/write heads accessing data with the help of a servo-mechanical “access arm.” (Source: IBM Corporation, 305 RAMAC, *Random Access Method of Accounting and Control: Manual of Operation (Major revision, Form 22-6264-1)*, April 1957, 13)

Fig. 3. IBM Corporation, RAMAC actuator and disk stack, 1956. 54in x 40in x 30 in. “This is the heart of the world’s first disk drive. It has 50 24” disks spinning at 1,200 RPM holding 5 million characters of information.” Photo: Mark Richards. (Source: Computer History Museum, Mountain View, CA. Object ID: L2009.1.1p.)

Each aluminium plate of this innovative device was coated with a thin film of special oxide paint. This paint protected the aluminium and lent it the capability to function as a magnetic storage medium. To prevent competition from copying this invention, in October 1959 IBM filed a patent for the composition of the special oxide paint used for the hard disk of the RAMAC. From October 16, 1962, onwards, IBM’s special paint—composed of epoxide resin, methyl phenol ether, polyvinyl methyl ether and an acid anhydride catalyst – was legally protected.² (Figure 4)

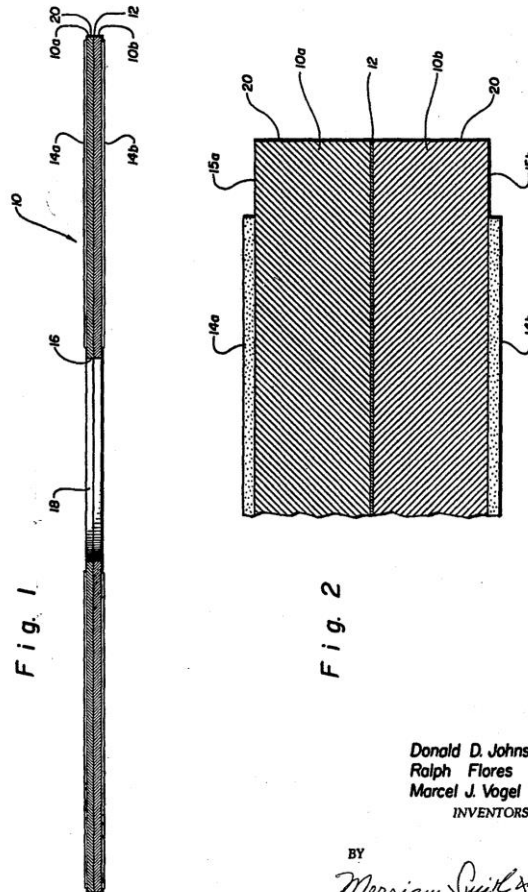
² Donald D. Johnson and Donald D. Johnson, Composition of Epoxide Resin, 3058844, filed October 13, 1959, and issued October 16, 1962, <http://www.google.com/patents/US3058844>.

Oct. 16, 1962

D. D. JOHNSON ET AL

3,058,844

COMPOSITION OF EPOXIDE RESIN, METHYLOL PHENOL ETHER, POLYVINYL
METHYL ETHER, AND ACID ANHYDRIDE CATALYST, AND METAL
SUBSTRATE COATED THEREWITH, ESPECIALLY
A MAGNETIC SIGNAL STORAGE DEVICE
Filed Oct. 13, 1959



Donald D. Johnson
Ralph Flores
Marcel J. Vogel
INVENTORS

BY
Merriam, Quill & Marshall
Attorneys

Fig. 4. Patent drawing for RAMAC's memory platters, filed Oct. 13, 1959. Section and detail.
(Source: Johnson, Donald D., and Donald D. Johnson. "Composition of Epoxide Resin,"
October 16, 1962)

2. Act I: Sokolniki Park, Moscow, USSR, July 24, 1959

The American National Exhibition that took place at the Sokolniki Park in Moscow during the summer of 1959 was the first major exhibition organized by the United

States Information Agency in the USSR³, and was visited by a staggering two and a half million Soviet visitors in 43 days⁴. The majority of the American exhibits in Moscow regarded consumer goods that ranged from washing machines and vacuum cleaners to TV sets and cake mixers⁵. IBM's participation in the exhibition though was clearly not targeting the consumerist sentiment of the average Russian individual, but to provide a glimpse of American technological advancement.

On an allotted stand inside the Fair's Glass Pavilion, IBM presented one of its latest products: the Model C Electric Typewriter. During the exhibition, visitors were allowed to get to experience up-close one of these state-of-the-art specimens of American office equipment. The centerpiece of IBM's participation, though, was undeniably the RAMAC 305 computer that had been air-shipped from San Jose, California.⁶ (Figure 5) IBM's computer was housed in a dedicated area at the internal periphery of the Fair's Dome that had been referred to programmatically as an "information machine";⁷ a term most probably proposed by L.A.-based architects Charles and Ray Eames who had used it a year before for a cartoon film they had created for IBM. For the USIA exhibition the Eameses also produced the multi-screen film titled *Glimpses of the USA*, which was projected on seven oversize screens suspended from the Dome's ceiling. In their own words, the fast paced film that depicted thousands of rapidly alternating scenes from life in the United States was devised as "a way of compressing into a small volume a tremendous quantity of information." As architectural historian Beatriz Colomina has claimed, the Dome's "architecture was conceived from the very start as a combination of structure, multiscreen film, and computer;"⁸ or, one would say, a transmedia spectacle of the information age.

³ An impressive chronology of the American Exhibits to the USSR, compiled by the Bureau of European and Eurasian Affairs on the occasion of the 50th Anniversary of the Moscow exhibition, counts nineteen major events between 1959 and 1989. Bureau of Public Affairs, U.S. Department Of State. The Office of Electronic Information, "Chronology: American Exhibits to the U.S.S.R.," <http://www.state.gov/p/eur/ci/rs/c26473.htm>.

⁴ IBM, "Raising the Iron Curtain," *Business Machines* 42, no. 9 (September 1959): 5

⁵ On this observation see: Arthur J. Pulos, *The American Design Adventure, 1940-1975* (MIT Press, 1988); Susan E. Reid, "Cold War in the Kitchen: Gender and the De-Stalinization of Consumer Taste in the Soviet Union under Khrushchev," *Slavic Review* 61, no. 2 (July 1, 2002): 211–52; David Crowley and Jane Pavitt, eds., *Cold War Modern: Design 1945-1970* (V&A Publishing, 2008); Greg Castillo, *Cold War on the Home Front: The Soft Power of Midcentury Design* (Minneapolis: University of Minnesota Press, 2010); Ruth Oldenziel and Karin Zachmann, eds., *Cold War Kitchen: Americanization, Technology, and European Users* (Cambridge, Mass.; London: MIT Press, 2011).

⁶ "Destination: Moscow," *Business Machines* 42, no. 8 (July 1959): 17.

⁷ Stanley Abercrombie, *George Nelson: the design of modern design* (Cambridge, Mass: MIT Press, 1995), 163–164; quoted in Colomina, "Enclosed by Images," 18.

⁸ Colomina, "Enclosed by Images," 20



Fig. 5. San Francisco Mayor George C. Christopher (right), IBM San Jose General Manager Gavin A. Cullen, and Pat Lamson, a student at San Jose State college examine one of the 50 memory platters of the RAMAC 305 before its shipment from California to Moscow. (Source: *Business Machines*, vol. 42, no. 8 (July 1959): 17)

Commenting on this specific trip of IBM’s “cosmopolitan” computer, a short feature in the July 1959 issue of *Business Machines* reads:

A trip abroad is nothing new for RAMAC, but its recent departure from San Francisco International Airport marked the first visit of the electronic “encyclopedia” to the world of the Iron Curtain. ... The machine will accept questions from Russian visitors, consult its memory, and print out answers in Russian on one of four electric typewriters.⁹

Just three years after the Dartmouth Summer Research Project on Artificial Intelligence in 1956, IBM’s computer is described as a jet-setting, knowledgeable, Russian-speaking ambassador on a diplomatic “mission.”

During the opening day of the American exhibition, President of IBM’s World Trade Corporation Arthur K. Watson demonstrated the RAMAC computer to then American Vice President Richard Nixon and Soviet Premier Nikita Khrushchev during their walk through the Fair’s grounds.¹⁰ (Figure 6) To showcase the machine’s impressive capabilities, IBM came up with an engaging, hands-on performance. A backlit panel listed 4,000 questions about life in the United States in Russian. (Figure 7) Once a visitor had picked a question from the list to be asked, he or she could request it to be “answered” by the RAMAC. A Russian-speaking IBM guide would then “input” the question to the computer through a keyboard. Finally, the RAMAC would answer the question and print it out as a keepsake of the “conversation” for the visitor.

⁹ “Destination: Moscow,” *Business Machines* vol. 42, no. 8 (July 1959): 17. Emphasis mine.

¹⁰ Conway Lloyd Morgan and Jack Masey, *Cold War Confrontations: US Exhibitions and Their Role in the Cultural Cold War* (Baden: Lars Müller, 2008)



Fig. 6. “IBM World Trade President Arthur K. Watson [on the right of Khrushchev] describes the operation of the RAMAC 305 to U.S. Vice President Richard Nixon and Soviet Premier Nikita Khrushchev.” (Source: *Business Machines*, vol. 42, no. 9 (September 1959)).

Crowds of more perplexed rather than curious Soviet visitors swarmed around the output devices of the system – four electric typewriters encased in bright red plastic. For those unable to secure a spot in front of the printer to witness the uncanny moment when the printer would start putting Cyrillic characters on paper to form answers that “satisf[ied] the curiosity”¹¹ of the onlookers, a zoom-lens camera fixed right above the printer ensured that answers simultaneously appeared on the overhead displays of a closed-circuit television system in real time.¹² (Figure 8) Even if the computer in reality merely retrieved the corresponding answer from its hard disk, the

¹¹ Here I am paraphrasing the title “Curiosity satisfied” in IBM, “Raising the Iron Curtain.”

¹² “Destination: Moscow.”

whole demonstration was set-up to give the impression of a machine capable of responding after “thinking,” in line with Watson senior’s famous slogan for the company.



Fig. 7. Russian visitors going through the backlit panels of questions that the RAMAC 305 could answer. Notice the closed-circuit television screen at the top center-right displaying answers being printed in real time. (Source: *Life*, v. 47, no. 6, (August 10, 1959)).



Fig. 8. Curious visitors at the IBM stand in the Dome. Some of them waiting for the RAMAC 305 to answer their questions; others hold their keepsake printouts. Photo: USIA. (Source: Conway Lloyd Morgan and Jack Masey, *Cold War Confrontations* (Baden: Lars Müller, 2008), 245).

The demonstration of RAMAC's technology was not only instantly mediated as a series of constantly fleeting images, but also automatically inscribed on pieces of paper that could act as transferrable reminders of this encounter between Soviet citizens and American computers. With the help of a printer the printer of the RAMAC 305 transformed pieces of information into a written document. Acting as tangible proof of this "conversation" between human and machine, tens of thousands of answers printed on sheets of accordion paper made their way to Soviet households in Moscow and beyond, serving as enduring proof of an American technological achievement, and, quite possibly, a source of resentment for the state of Soviet bureaucracy.

At the time RAMAC 305 was exhibited in Moscow, architect Eliot Noyes and graphic designer Paul Rand were working to provide the sleek, modern image that IBM became associated with during the 1960s and 1970s. Unlike the colorful Tupperware system exhibited in the Glass Pavilion next door, the RAMAC system in the Fair's Dome was housed in a sober set of trim grey steel casings designed by Noyes.¹³ Comprising a series of recombinant units, the RAMAC system allowed different elements of the computer system to be combined according to business needs and available space. Thus, smaller businesses could install the most basic layout (which consisted of the 380 console, the 350 disk unit, the 370 printer unit and the 323 punch card), while businesses with more floor space available could install larger configurations with more units. In principle, the RAMAC 305 was envisioned as a site-responsive kit of parts whose recombinant capacity ensured both its functional and aesthetic integrity. The modularity of this architecture enabled different parts of a large system to be transferred around and changed according to need over time.

To design such custom systems, the IBM engineers at San Jose, used a collection of reconfigurable, model building blocks to represent a variety of possible layouts. Different combinations of these blocks were subsequently photographed in order to choose the most fitting arrangement for each commercial client. The spatial articulation of the RAMAC 305 as a modern machine was imagined through traditionally architectural media and protocols.

The RAMAC 305 exhibit in Moscow could be interpreted as a spatial enclave devised to present the commercialization of computing. Accordingly, the architectural setup of the installation alluded to a modern office interior, not dissimilar to the ones found in contemporary corporate headquarters along 6th Avenue in New York. Laid-out as freestanding furniture islands on a grid, the computer units defined a permeable open plan with corridors, as the ones produced by a standardized cubicle system. Right in the center of this composition, the 350 disk unit and the 380 console were constantly visible from almost any angle. (Figure 9) Seated on a revolving desk chair with wheels, the human operator of the computer's main console could effortlessly roll between visitors, the input keyboard and the printers. The dialog with the RAMAC 305 was thus choreographed in space as an engaging negotiation between

¹³ John Harwood, *The Interface: IBM and the Transformation of Corporate Design, 1945-1976* (University of Minnesota Press, 2011).

the grey-colored computer and the Russian audience, mediated through IBM's grey-attired business representatives.



Fig. 9. General overview of the overall layout of the IBM stand with the RAMAC 350 disk unit (center, back), the 380 console (center, middle), four office desks with electronic typewriters (right) and crowds being given tours in Russian. (Source: *Business Machines*, v. 42, no. 9 (September 1959): 5)

While serving as an “electronic ambassador” on display at the National American Exhibition in Moscow, the RAMAC 305 was still as much an output as much as an input system, collecting statistical data such as the total number of questions asked or the most popular questions requested in random order as they occurred. What was implied is that the processing of this large pool of data collected from Fair visitors could help classify and quantify the most common preoccupations of Soviets about American life and present them in a concise summary printout with mathematical, “unbiased” precision. IBM and the USIA could eventually transfer all this collected data that was magnetically stored on RAMAC’s hard disk back to the United States for analysis.¹⁴

3. Act II: IBM Corporation plant, San Jose, California, USA, September 21, 1959

The second act of RAMAC’s diplomatic mission took place only a few weeks later, on September 21, 1959. The architectural backdrop this time was situated back in California, at the IBM Manufacturing and Administration Building in San Jose. Designed by award-winning Berkeley, California architect John S. Bolles, the plant

¹⁴ IBM, “Raising the Iron Curtain.”

had only been recently completed the year before. The modernist campus, with the single story Building no. 25 devoted to Advanced Research and Development at its center, was the manufacturing site of, or in IBM's words "Home of" the RAMAC.¹⁵

Just as the disk unit of the RAMAC 305 exposed its revolving magnetic plates through Noyes's glass casing, Building no. 25 on the San Jose campus similarly revealed its inner workings. Vast glazed surfaces provided sneak peaks of whatever was happening in manufacturing spaces, laboratories and offices, even the workers' cafeteria. Outside, a system of reflective pools, pedestrian bridges, manicured landscapes and sculptures reminded little of typical factories in the Bay area. Resembling more a seaside holiday resort on Santa Cruz than an industrial plant, IBM used Building no. 25 as the new architectural face of the company. Invoking a seductive blurring between work and leisure time, colorful depictions of the San Jose campus in IBM's brochures and advertisements explicitly pointed out that this architecture had pretty much arrived from the future. In one of these brochures titled "One of America's 10 most beautiful plants," a graphic inversion of the last two digits of the completion date of the plant (from 1958 to 1985) alluded to an architecture that had travelled back in time from the future to meet the present.

During the same month, Nikita Khrushchev had embarked on a 12-day diplomatic trip through the United States, making major stops in New York, Los Angeles, San Francisco and Washington among other cities. Khrushchev strategically arrived to the U.S. just a week after the Soviet spacecraft Luna-2 became the first human-made object to impact the surface of the moon on September 14, 1959.¹⁶ Shortly after a failed attempt to visit Disneyland in Anaheim California, Khrushchev also made a stop in San Jose. The invitation had come from Thomas J. Watson Jr. himself, who reasoned to the Department of State that "a visit to an IBM plant might help the Russians understand America and Americans better and thus contribute to the cause of world peace."¹⁷ After having witnessed the exposure that IBM had received through its participation in the USIA exhibition in Moscow a couple of months earlier and the publicity frenzy that closely followed Khrushchev's trail on American ground, Watson Jr. was cunning enough to foresee that even the briefest stop-over of the Soviet Premier in San Jose was free publicity for the company, both in the US and the Soviet Union.

Khrushchev's visit resulted in nationwide headlines from local newspapers – from The San Jose Mercury-News, to the cover of The New York Times – as well as coverage by national television networks such as NBC.¹⁸ IBM's own journal even devoted its whole October 1959 issue to the coverage of the event. The surge of dozens of press representatives, newspapermen and TV reporters, coincidentally

¹⁵ "Crowds Engulf Visiting Russians on IBM Tour," *Business Machines* 42, no. 10 (n.d.): 4.

¹⁶ Often referred to as "Lunik" or "Lunnik" by Western press.

¹⁷ Thomas Watson Jr., "A Letter from the President," *Business Machines* 42, no. 10 (October 1959): 2.

¹⁸ See, for example: "Khrushchev Hails Business Men in Visit to California Factory; President Again Asks Courtesy," *The New York Times*, September 22, 1959.

provided a last-minute opportunity for IBM to set-up a special battery of IBM typewriters, similar those exhibited in Moscow.¹⁹

If diplomatic obstacles were eventually surpassed, the Soviet Union could at some later point become a key among the several international business clients of IBM. Considering its sheer geographical size, its vast array of bureaucratic institutions and manufacturing sector as well as its practically non-existent computer industry, the Soviet Union could potentially become one of the most profitable additions in IBM's multinational clientele through IBM World Trade Corporation.²⁰ Bookkeeping of all sorts was IBM's expertise and the Soviet Union could have its own RAMAC 305s permanently shipped to Moscow for a "mere" \$189,000 each.²¹ If such an agreement was to blossom, IBM would see profits from its international sales rise well above the 1/5 of its total revenue at the time, which was primarily due to the recovering European market.²²

Watson Jr. had arranged for a 20-minute presentation of the RAMAC 305, lunch with the Soviet Premier in the plant's cafeteria, and a tour through the assembly line of the computer. (Figure 10) The RAMAC's updated demonstration, "coincidentally" included the ability to recite key historical event that paved the formation of the Soviet Union, such as the Russian Revolution.²³ The message that had to be successfully communicated during the short duration of the demonstration was that, despite their American origin, IBM computers were flexible and fast learners; not only capable of assimilating new languages, such as Russian, but also adaptable enough to handle all kinds of references and information. And while individuals like Watson and Khrushchev might have conflicting ideologies and views, the computing "ghost" in this machine was implied to be blind to ideology.²⁴

¹⁹ "Press and TV Coverage," *Business Machines* 42, no. 10 (October 1959): 14–15

²⁰ IBM World Trade Corporation was a subsidiary of IBM established in 1949 that was occupied with the company's commercial activity abroad.

²¹ Alternatively, one could rent a RAMAC for a month at the time. "Khrushchev Sees Huge IBM Plant," *The Spokesman-Review*, September 22, 1959AD.

²² "Transition," *Newsweek* (November 22, 1937): 5; quoted in Jr and Zeiler, *Globalization and the American Century*, 82.

²³ Thomas J. Watson recalled later: "The computer demonstration we had planned for Khrushchev was pretty dramatic. We had the RAMAC programmed to work like an electronic history book. ...if you said 1917 it would reply 'The Russian Revolution.' This demonstration was dear to my heart because I'd thought it up myself." Peter Petre, Alfred D Chandler, and Thomas J. Watson, *Father, Son & Co.: My Life at IBM and beyond* (New York: Bantam Books, 1990), 328.

²⁴ The term "Ghost in the machine" was coined by philosopher Gilbert Ryle in his 1949 book *The Concept of Mind* to describe the Cartesian dualism of body and mind. Gilbert Ryle, *The Concept of Mind* (London; New York, NY: Hutchinson's University Library, 1949).



Fig. 10. Nikita S. Khrushchev walking through the RAMAC assembly line with his entourage.
Photo: Nat Farbman. (Source: *Life* image archive)

Recalling his discussion with Khrushchev through the assembly line, Watson Jr. wrote in his memoirs:

...when we toured the plant, Khrushchev said, “We have plants like this in the Soviet Union.” Then he looked a little puzzled and said, half to himself, “We must have plants like this in the Soviet Union.” Why [his interpreter, Viktor] Sukhodrev didn’t leave that one untranslated I never knew.²⁵

²⁵ Thomas J. Watson Jr., *Father, Son & Co.: My Life at IBM and Beyond* (New York: Bantam Books, 1990), 330. Emphasis in the original.

In a confidential memorandum regarding this conversation between Khrushchev and the American delegation the Department of State interpreter to President Eisenhower, Alexander Akalovsky, later mentioned:

On our way back from San Jose, Khrushchev commented on the excellent IBM plant, but said that computers were very highly developed in the Soviet Union too; such things as A bombs or the H bomb could have never been developed in the Soviet Union if it hadn't had highly complicated and sophisticated computers.²⁶

Even though digital electronic computing in the USSR at the time was still at its infancy, Khrushchev's exaggerated claims reinforced to one of the biggest American fears since the confirmation of Soviet espionage during the Manhattan Project: that the Soviets were possibly also advancing in digital computing beyond the phase of prototyping. After returning to San Francisco a few hours after his tour, Khrushchev reformulated his response, to state:

The plant we saw was making computers, I'm no specialist in the matter, and any assessment that I were to give of the plant would be insignificant; but I suppose we also produce machines like that. I don't know who makes the better machines; that, of course, is a question. I saw the machines, but, of course, I don't understand the actual substance of the matter. Perhaps, ours are better; I don't know...²⁷

By the time Khrushchev finally got to dictate his own memoirs, any reference to the computers showed in IBM's plant had completely evaporated. Sergei Khrushchev, Nikita's son who accompanied him throughout the trip in North America and the visit to IBM's plant, has also noted repeatedly that his father's fascination in San Jose lay elsewhere. He commented:

Father was staggered by the IBM cafeteria much more than by its computers. In 1959 the idea of self-service had not reached our country. [...] After returning, to Moscow, Father ordered that food service be organized the IBM model. Without tablecloths and without waiters. That innovation alone would save a great deal of money if applied country-wide.²⁸

²⁶ Alexander Akalovsky, trans., "Foreign Relations of the United States, 1958-1960. Volume X, Part I, Eastern Europe Region, Soviet Union, Cyprus. Document 112: Memorandum of Conversation. Conference Files: Lot 64 D 560, CF 1474. Confidential." (U.S. Department of State, September 21, 1959).

²⁷ "After He Left," *Business Machines* 42, no. 10 (October 1959): 15.

²⁸ Sergei N. Khrushchev, *Nikita Khrushchev and the Creation of a Superpower*, trans. Shirley Benson (Penn State Press, 2001), 334.



Fig. 11. Thomas Watson Jr. and Nikita S. Khrushchev laughing at the self-service cafeteria of the IBM plant in San Jose, California. Photo: Carl Mydans. (Source: *Life* image archive)

Khrushchev was more impressed by the view of sliding trays across a horizontal rack at the restaurant, rather than the spinning memory platters along a vertical spindle in the factory. (Figure 11) And it is no coincidence that the self-service layout of the cafeteria constituted the single “IBM technology,” that could be most immediately transferred back to the USSR, as the reverse engineering of machines like the RAMAC clearly called for a whole different kind of expertise.

4. Denouement: Reconnaissance in Public

Until the participation of the accession of the USSR to the Strasbourg agreement on International Patent Classification on March 24, 1971, the Office of Export Control and the NATO Coordinating Committee severely restricted companies IBM from making commercially available abroad products of American technology.²⁹ It was only later that year, in October 1971 that IBM participated for the first time with its own pavilion in a Soviet-organized computer trade exhibition. Between October 6-17, IBM exhibited its new Selectric typewriters and the iconic System/360, at the exhibition *Sistemotekhnika '71* in Leningrad.³⁰ (Figure 12) IBM’s 11-day long presence resulted into a great commercial success; it was sealed with a pre-arranged Soviet order of an IBM 360 Model 50 confirmed just a month later.³¹

²⁹ Patent Office, “Soviets Assure Patent Protection For American Technology Marketing,” *Commerce Today* II, no. 4 (November 29, 1971): 18–19.

³⁰ “A Fair Day at Leningrad,” *Think* 37, no. 10 (November 1971): 8–9.

³¹ “The Russians Were Here,” *Think*, June 1972, 40–41.



Fig. 12. IBM's pavilion at the exhibition *Sistemotekhnika-71* in Leningrad. "A Russian tries his hand at an IBM Selectric typewriter." Notice the base of the desk inspired from Saarinen's tulip table and the transliteration of IBM's logo in Cyrillic on the right. Photo: Jane P. Cahill.

(Source: "A Fair Day at Leningrad." *Think* 37, no. 10 (November 1971): 9)

In the sequence of events that paved the way to such commercial agreements only twelve years after the American National Exhibit in Moscow, IBM's RAMAC 305 led a protagonist's role. Unlike a lot of earlier mainframe computers, the RAMAC was deliberately designed – with the help of Noyes – as a modular system of combinable components that could be easily transported around the world and change the ways in which traditional business and planning was done. In all the instances of its promotion discussed here, IBM portrayed it as a thinking machine with a distinct personality; an agent that could engage in a discussion, learn and speak new languages, possess a historical memory and assume the role of the diplomat for a nation by travelling around the world.

Within the cultural exchanges of the Cold War that started with the 1959 USIA exhibit in Moscow, the RAMAC 305 was rationalized as an "ambassador" that

“communicated with more Soviet citizens than any other American representative”³²; an ambassador whose trips contributed to the ultimate participation of the USSR in global treaties on the fair use of patented technologies. Ultimately, the designed portability of RAMAC’s individual units enabled IBM’s computers to circulate as both physical objects and imaginaries; or, as both tangible artifacts and powerful mythologies.

However, unlike the self-service system of a cafeteria, the technology embedded in the RAMAC 305 was not one that could be easily replicated.³³ As an intricate piece of research and development, the RAMAC 305 could not be simply reverse-engineered. In that respect, it was a technology that could only be truly transferred from the United States to the Soviet Union through commercial purchase contracts. And whatever technological breakthroughs the RAMAC 305 might have absorbed and represented were utterly secondary compared to its ability to feed the Cold War discourse of technological supremacy between the two superpowers; a discourse that largely thrived on the myths constructed around objects of technology – such as the Luna-2 satellite or the RAMAC 305 – rather than their actual capabilities.

³² James Schwoch, “A Record of Some Kind in the History of International Communication,” in *Global TV: New Media and the Cold War, 1946 - 69* (Urbana; Chicago: University of Illinois Press, 2009), 94.

³³ On the close eye that IBM kept on the emerging Soviet computer industry during the Brezhnev years, see this report published in IBM’s own journal: Leo Gruliow, “BESM-6. DNEPR. MINSK-22. Codes? Nyet. Computer? Da!,” *Think*, August 1971, 37–41.