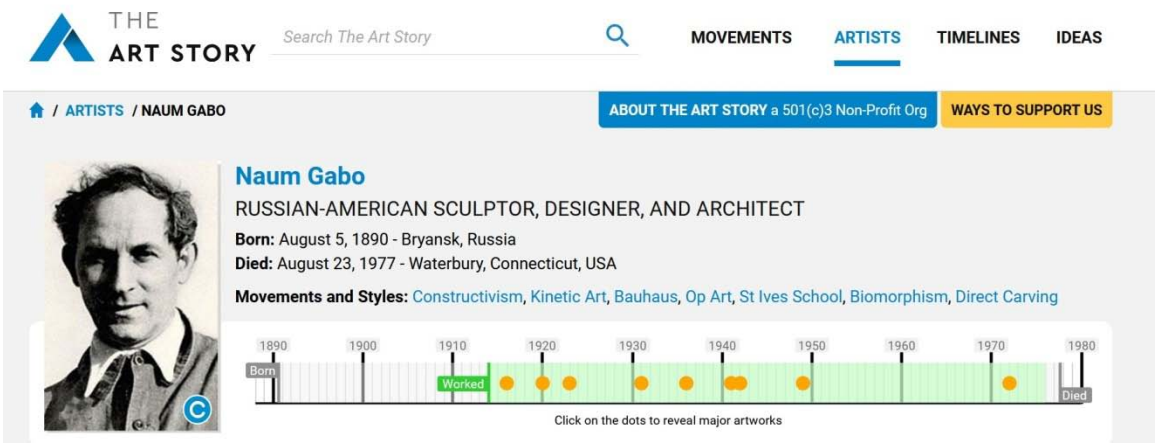

Naum Gabo

Naum Gabo's structurally complex, mesmeric abstract sculptures cast a shadow over the whole of 20th-century art, while his life was that of the quintessential creative émigré, as he moved from country to country seeking new contexts for his work, in flight from war and repression. As a young man in post-Revolutionary Russia, Gabo was closely associated with Constructivism, which sought to blur the boundaries between creative and functional processes. He incorporated principles from engineering and architecture into his creative explorations, and used his sculptures to describe and demonstrate new scientific concepts such as Einstein's space-time relativity. Gabo worked through various movements and ideas, eventually settling in the United States after the Second World War. Like all the most important artists, his work and his life were fundamentally shaped by the era in which he lived, and helped to define that era in turn.

Accomplishments

- Gabo believed that art should have an explicit and functional value in society. As a student of engineering and architecture, he emulated and demonstrated cutting-edge techniques from those fields in his sculptural constructions, and designed complex architectural plans himself. This element of his work, initially developed to mould the mindset of the new Soviet citizen, influenced a whole paradigm within 20th-century art: the idea of dissolving the boundaries between artistic and functional processes.
- One of Gabo's most important discoveries was that empty space could be used as an element of sculpture. Constructing his sculptures from sets of interlocking components rather than carving or moulding them from inert mass allowed him to incorporate space into his work more easily. Intended to demonstrate ideas from modern geometry and physics, Gabo's use of space within sculpture stands alongside Stéphane Mallarmé's incorporation of page-space into poetry, and John Cage's incorporation of silence into music, in epitomizing a modern, secular concern with expressing what is unknown as well as what is known: with void as well as form.

- By incorporating moving parts into his sculpture, or static elements which strongly suggested movement, Gabo's work stands at the forefront of a whole artistic tradition, Kinetic Art, which uses art to represent time as well as space. Indeed, his *Kinetic Construction* of 1920 is often considered the first work of Kinetic Art. From this point onwards, Gabo's work incorporated or suggested what he called "kinetic rhythms", reminding the viewer of a quintessentially modern discovery first made by Albert Einstein, that time and space only exist in relation to each other.

Important Art by Naum Gabo

Progression of Art

c. 1916

Constructed Head No. 2

Constructed Head No. 2 is a figurative bust, one of four similar works that characterize Gabo's early career, created during his period of refuge in Norway during World War One. Constructed from flat planes of intersecting plywood this Madonna-like figure alludes to the icon paintings that Gabo would have seen in Russian Orthodox domestic interiors, traditionally placed high up in the corner of the room, as if watching over the inhabitants below. The appearance of the busts shifts and modulates constantly, based on viewing angle, lighting, and other ambient factors.

During his travels to Paris in 1912-13, Gabo had seen Picasso and Braque's paintings - the artists were still in their so-called Analytical Cubis" phase - and in Norway he began to apply similar concepts of breaking up the picture plane into three-dimensional work - consider Picasso's *Woman with Pears* (1909), for example. Using his engineering training, Gabo rejected traditional sculptural techniques of carving and moulding, instead using processes closer to architectural construction, building up his sculptures from interlocking components. This meant he could incorporate empty spaces into his sculptures. In generating the impression of volume in empty space, Gabo was responding to contemporary scientific theories stressing the "disintegration between solids and surrounding space".

Constructed Head No. 2 is one of a set of early figurative works by Gabo now seen to have revolutionized sculpture. His ingenious extension of Cubist painting techniques into the realm of sculpture predicated much abstract sculpture of the following decades. By working with the technical precision of an engineer or architect, and by illustrating new scientific concepts, Gabo predicted the functionalist aesthetic of the nascent Constructivist movement - the work of Alexander Rodchenko and others - and of Concrete Art, Kinetic Art, and other post-Constructivist movements of the mid-to-late-

20th century. His use of empty space as a substantive element of sculpture is echoed in later works by British artists such as Barbara Hepworth and Henry Moore.

Galvanized iron

1920

Kinetic Construction (Standing Wave)

This is a relatively simple construction by Gabo's standards, consisting of a plain steel rod affixed to a wooden base. But when set in motion by an electric motor, the oscillations of the rod generate a delicately complex image of a freestanding, twisting wave. *Kinetic Construction* was Gabo's first motorized sculpture, demonstrating his pioneering integration of engineering techniques and scientific principles into art. It was first exhibited in 1920, to great critical acclaim.

Kinetic Construction was devised partly to demonstrate the aesthetic concepts proclaimed in Gabo and Pevsner's *Realistic Manifesto*. In particular, the piece seems to enact the idea that "kinetic rhythms" should be "affirmed ... as the basic forms of our perception of real time", associable both with Einsteinian space-time relativity and (probably more directly) Henri Bergson's conception of time as non-linear. "Standing Wave" is a physician's term, used to describe exactly the kind of static-seeming patterns of movement, generated by the passage of energy through certain structures, which the sculpture creates. The construction was therefore intended precisely to demonstate a scientific principle, and as a more sophisticated, scientifically accurate rendering of motion than the Futurists had managed with their rather excitable paintings. Recalling the creation of the sculpture in impoverished, war-torn Moscow, where most of the factories were shut, Gabo stated that he visited the mechanical workshop of the Polytechnicum Museum, where he requisitioned an old electric door bell whose internal electromagnet became the mechanical component of the piece. Later versions of *Kinetic Construction* were more complex, incorporating a switch button, and built from more sophisticated materials.

Expressing a new, intellectually scrupulous approach to the fascination with movement which characterized avant-garde art of this period, Gabo created a work which stands at the forefront of Kinetic Art. Artists such as Alexander Calder, Jean Tinguely, Victor Vasarely, and Bridget Riley all worked in the wake of Gabo's pioneering experiments. Moreover, in rejecting the notion of sculpture as weighty, monolithic and solid, and in emphasizing that space is no less tangible than solid matter, this delicate construction predicts a number of elementary paradigms in modern sculpture more generally. At the same time, it is perhaps the most literal of Gabo's Kinetic sculptures - he called it more of an "explanation of the idea than a Kinetic sculpture itself" - and he progressed from here to works that suggested rather than embodied movement, through their dynamic arrangement of form and space.

Metal, wood and electric motor - Collection of the Tate, United Kingdom

1923

Column

Column is a freestanding vertical tower made from two transparent, interlocking, rectangular planes that rise from a circular base of dark steel. Set within the Perspex planes are opaquely colored, geometric floating shapes, and an open ring. It is one of a number of works created during the early 1920s which demonstrate Gabo's departure from the early, figurative style of the *Constructed Heads*, and his movement towards a more pure abstraction.

Works such as *Column* were in most cases only definitively realized after Gabo left Russia in 1922 for Germany: where, amongst other things, he had easier access to materials. But this piece has its origins in the heady post-revolutionary atmosphere of early 1920s Moscow, where sculptors were attempting to apply the abstract visual vocabulary of the Suprematist painter Kazimir Malevich to three-dimensional art. Such efforts were galvanized by the formalisation of ideas associated with Constructivism, partly through the creation of the First Working Group of Constructivists in Moscow in March 1921. This group idealized the principles of engineering and architecture, and wanted art to have a similarly functional purpose. Though not a part of this group, and opposed to aspects of their utilitarian aesthetic, Gabo was breathing the same creative air, and like the Working Group artists, was inspired by the demonstration of modern engineering principles in Vladimir Tatlin's majestic *Model for a Monument to the Third International* (1920).

The use of industrial materials like metal and glass in works like *Column* was a way of emulating mechanical and architectural processes, as was the angular precision of the design. The fact that it was intended as a model for a building exemplifies the Constructivist concern with giving art a functional purpose. At the same time, Gabo's interest in transparent materials like glass and plastic - which was profound and enduring from this period onwards - reflected his ongoing fascination with depicting volume independently of mass. The two interlocking vertical planes in this piece, for example, generate a rectangular form without creating a solid rectangle. For Gabo, sculptures like *Column*, which gave a certain impression of weightlessness, "appeal[ed] to minds and feelings more than crude physical senses".

In retrospect, works like *Column* set the tone for aspects of Gabo's work throughout the rest of his career. But they are really significant in epitomizing a moment in the history of modern art when it seemed that avant-garde painters, sculptors and architects might have a role to play in the construction of a new society. The abstract compositional vocabulary of works like *Column* was not abstract for the sake of it, but was intended as a means of defining the new ways in which Soviet citizens might feel, perceive, and act within the world around them.

Perspex, wood, metal, and glass - The Solomon R. Guggenheim Museum, New York, New York.

1931

Submitted Design for Palace of Soviets: Plan of Main Hall and Section

In 1931, towards the end of his decade in Germany, Gabo produced architectural plans for a government competition to create a new building in Moscow, commemorating the founding of the USSR. The Palace of the Soviets, according to the brief, was to consist of two auditoria holding 20,000 people in total, and would serve as a venue for mass meetings, demonstrations, and cultural events. Gabo's proposal was his first attempt at a fully realized architectural plan, and was a logical extrapolation of the aesthetics and techniques of his earlier, abstract sculptural works.

Gabo's plans, on which he worked feverishly for several months, consisted of two vast auditoria constructed from reinforced concrete, protruding from a towering central service block. The auditoria would be hollow, curvilinear, shell-like forms, absorbing stress evenly across their entire surfaces. This was an adventurous approach to the concept of load-bearing in architecture, a job that would generally be performed by distinct components such as beams or ribs. At the same time, the dynamic curves of the design represented a departure from the geometric aesthetics of the "International Style" then prevalent in modernist architecture, which Gabo had studied, and emulated in previous architectural sketches. In a sense, his approach to the project had developed out his earlier interest, as a sculptor, in the difference between mass and volume: how a space could be articulated without being filled with solid elements. The designs also bespoke Gabo's ongoing commitment, in spite of his awareness of the realities of Stalinism, to the Soviet project of constructing a new social realm. Indeed, he felt that the combination of his Russian roots and his recent experience with Western architectural and scientific principles would stand him in good stead in the competition. It is a sign of how much Russia had changed since Gabo's departure nine years previously that neither his proposal nor those of the other modernist architects who had entered were rewarded by the judges. The ultimate winner was the pompous, neo-classical design of architect Boris Iofan. Ultimately, construction on the Palace of the Soviets was aborted by the German invasion of Russia in 1941, and never resumed.

Gabo's striking designs for the Palace constitute one of his most important creative works, and are a remarkable achievement given his lack of architectural training. Moving away from the geometrical precision typical of 1920s modernist architecture - the work of Le Corbusier, for example - Gabo's work predicts later developments in the style, such as the curvilinear forms of Lucio Costa and Oscar Niemeyer's designs for Brasília in the 1950s.

Pencil and india ink on paper - Shchusev State Museum of Architecture, Moscow

1941

Spiral Theme

One of four models made in anticipation of two larger sculptures, *Spiral Theme* is a curvilinear, transparent construction with a central vertical element, reminiscent of the shells Gabo found on the beaches around St. Ives, his home from 1939 to 1946. Key to this work, considered by many critics to be amongst Gabo's finest, are the harmonious, organic rhythms generated by the interplay of curved lines, and the complex patterns of reflected light which shift and reconfigure as the viewer moves around the sculpture.

Spiral Theme was created at a time when Gabo was deeply concerned about the threat of German invasion of the UK, and the fate of his family in Russia, which had already been invaded by Germany in June 1941. The Cornish coastline was a source of emotional solace; since moving to St. Ives, the Gabos had collected shells from the nearby beaches. Then, in the summer of 1941, art patron Margaret Gardiner offered Gabo £25 to produce a work for her partner, the scientist John Bernal. Drawing inspiration from his natural surroundings - a relatively new creative approach for Gabo - and from a series of photographs he had made that summer of light patterns reflected from shiny surfaces, Gabo created the first maquette for *Spiral Theme*. A larger version was created for the exhibition *New Movements in Art: Contemporary Work in England*, held at the London Museum in Spring 1942. The larger versions of *Spiral Theme* arose from Gabo's discovery, in 1935, of a new compositional material, Perspex, which had increased flexibility when heated, and was more transparent than the celluloid he had used in earlier works. In a country starved of resources, Gabo had to rely on a friend who worked for Imperial Chemicals to provide these materials.

With the four versions of *Spiral Theme* Gabo discovered a new aspect of his creative register, the pieces' graceful, organic forms supplanting the geometric planes and precision of works such as *Column*, and perhaps reflecting his new creative friendships with artists like Barbara Hepworth. In essence, these pieces reflect a shift in Gabo's way of thinking about the depiction of empty space as volume, something he now felt was best achieved with spherical rather than angular forms. *Spiral Theme* also helped to ensure Gabo's reputation within Britain. His friend, the art critic Herbert Read, described it as expressing "the highest point ever reached by the aesthetic intuition of man". Public response to the work in the London Museum show was similarly positive, its lush organic forms perhaps providing a similar form of solace to a public in the grips of war as the shells of Carbis Bay had to its creator.

Cellulose, acetate and Perspex - Collection of the Tate, United Kingdom

Kinetic Stone Carving

Kinetic Stone Carving is one of Gabo's more anomalous and beautiful works, which would probably not have been created without the creative stimulus of his friendship with British abstract sculptors such as Henry Moore and Barbara Hepworth during the late 1930s and 1940s.

The piece, carved from a single block of Portland Stone, was begun in London in 1936, shortly after Gabo's arrival in Britain following four unhappy years in Paris. Finished in St. Ives, it is one of a number of stone works from this period which represent Gabo's first experiments with the time-honored technique of direct carving. Inspired by his war-time associates Moore and Hepworth, Gabo wanted to see if he could generate the sense of kinetic rhythm which his work relied on whilst utilizing a more conventional approach to sculpture. Sure enough, the piece generates a marked contrast between the rough texture of the untreated stone and the two smooth, shelf-like planes chiselled into it, which snake horizontally around it, interconnecting when viewed from above. An illusion of movement is created as the smooth, wave-like shapes seem to advance and recede.

Kinetic Stone Carving represents a major shift from the Constructivist process of assembling individual elements which Gabo had helped to define earlier in the century. Showing his openness to new techniques and influences, Gabo inscribed dynamic rhythms into the surfaces of stone - his new-found fascination with this material would occupy him until his death.

Portland Stone - Collection of the Tate, United Kingdom

1942-43

Linear Construction in Space No. 1

Linear Construction in Space, another work created during Gabo's time in St. Ives, is formed from nylon filament thread wound taut around a Perspex framework, creating an intricate web that encases a central void. Light catches the transparent plastic, generating a shimmering, ethereal-seeming structure, and creating the illusion of motion as the viewer moves around the sculpture.

Again, this sculpture represents a creative departure from Gabo's previous work. The use of space in the work, in this case the central void enclosed by the surrounding Perspex, becomes a newly prominent feature. This piece also represents the first time Gabo used string in his work, inspired by geometrical modelling techniques and by Barbara Hepworth and Henry Moore's sculptures, though Gabo applied this compositional material in a new way. For the British artists, the string is an addition to the dominant sculptural form, and is widely spaced, adding distinct lines and texture which contrast with solid mass. For Gabo, the string literally constitutes the surface of the sculpture, replacing his earlier practice of scoring lines onto Perspex. By using nylon, a new, synthetic material whose elasticity, smoothness and translucency defined the feel of this

sculpture, Gabo again demonstrated his engagement his interest in using new, man-made compositional materials.

Created as a prototype for a site-specific, large-scale public sculpture intended to be placed near a Soviet textile factory, *Linear Construction* was conceived as a tribute to the artists and workers still attempting to construct a socialist society. In this sense, the work represented Gabo's lingering commitment to Soviet utopian ideals, even this late into Russia's socialist experiment. At the same time, the sculpture spoke to a spiritual concern which had been present in his aesthetic as far back as *The Realistic Manifesto* (1920), but which was now becoming more pronounced, with the central, framed space evoking ideas of the infinite and the cosmic.

Perspex and nylon - Collection of the Tate, United Kingdom

1949

Linear Construction in Space No. 2

A reverse structure, and a kind of companion piece, to *Linear Construction in Space No. 1*, here nylon filament is tightly wrapped around two curvilinear, intersecting plastic planes shaped like a seed pod, creating a shimmering, reflective central form. As the string nears the central core, it is wound with increasing density, creating a mesmeric gradation of depth. The dynamic arrangement of string-work and Perspex creates three-dimensional light patterns which transform as the viewer moves around the object.

Linear Construction in Space No. 2 was Gabo's first significant work after his move to the USA in 1946. 20 separate versions exist of this sculpture, strung together in complex and delicate configurations, light catching the nylon filament to emphasize what Gabo called a "sense of immateriality". As in the earlier *Linear Construction*, space is contained without being filled, a new and elegant way of emphasizing volume independently of mass. But this second construction in the series also reflects Gabo's new ambitions for his work after moving to the centre of global economic and cultural power after the Second World War, where wealthy patrons and lucrative commissions were more readily available. The various versions of *Linear Construction in Space No. 2* grew from Gabo's unrealized plans for two public sculptures to stand outside the new Esso Building at the Rockefeller Center in New York. His maquettes for that project, and the earliest version of *Linear Construction 2*, date from 1949; the version in the Tate Collection was specially constructed and donated by the artist in 1969, in memory of his friend Herbert Read (it was rebuilt in 1971).

Linear Construction in Space No. 2 is known to have been one of Gabo's favorite works, and it signals arguably the final significant creative shift of Gabo's career, taking him towards the large, public works of the 1950s-70s.

Plastic and nylon threads - Collection of the Tate, United Kingdom

Revolving Torsion Fountain

An elegant public artwork constructed from curved, stainless steel plates, designed for installation in a pool of water, *Revolving Torsion* represents the culmination of principles of Kinetic art first explored over 50 years earlier by Gabo's *Kinetic Construction*. The central abstract form completes a full rotation every 10 minutes, as plumes of water emerge with varying pressure from 140 holes on the steel wings of the fountain, assuming the form of curved planes.

Like lots of Gabo's later, large-scale public works, *Revolving Torsion* is the final realization of a theme previously expressed across a range of scales and materials, in this case as various plastic and metal models created from the late 1920s onwards: *Model for Torsion* (circa 1928), *Torsion: Project for a Fountain* (1960-64), etcetera. The plan for *Revolving Torsion* was hatched following a visit from Norman Reid, director of the Tate Gallery, to Gabo's studio in the USA. Gabo sent a maquette to London, where Reid located a sponsor to fund the construction of the final piece and find a suitable location. The sculpture was eventually installed as a fountain centre-piece for St. Thomas's Hospital, London in 1975, and in 1976 was unveiled by Queen Elizabeth II during the hospital's official opening.

Once again, in this late work, Gabo makes new strides in his ongoing quest to find ways of expressing volume independently of mass. The introduction of a liquid element into the body of the sculpture is highly significant, with the surfaces formed by the jets of water replacing the string meshwork of the *Linear Constructions* in creating the illusion of solid matter. The steel used in the sculpture, in turn, was chosen by Gabo for its resemblance to water, with the result that the distinction between the two elements - liquid and solid - is blurred. This subtle interplay is complemented by the interplay of shadows on the pool of water below.

Stainless steel - St Thomas's Hospital, London

Biography of Naum Gabo

Childhood

Gabo was born Naum Pevsner in the small Russian town of Bryansk, the sixth of seven brothers and sisters. The Pevsners were a large, tightknit, patriarchal middle-class family, with a strong and charismatic father, Boris, and mother, Fanny. Though Boris was Jewish, the siblings were brought up Christian through the influence of their Russian Orthodox grandmother, and Naum would distance himself from his Jewish roots for much of his life. Boris Pevsner owned a successful metal works and rolling mill, which supplied many of the railways around Russia. It was by this means that the young Naum became familiar with many of the industrial materials that would later inspire his work, while two of his older brothers pursued careers in engineering. A third, Natan (later Antoine), four years older than Naum, became a successful artist, and was a significant influence on his younger brother, whose artistic curiosity was beginning to emerge

through a love of poetry and early attempts at sculpture, informed by the Tsarist art that dominated his cultural landscape.

From an early age, Naum was strong-minded, rebellious, and politically driven. Described by siblings as a "mischievous and daredevil character", he soon looked for radical ways of expressing himself. Expelled from his primary school in 1904 for writing subversive poems about his headmaster, he was sent to Tomsk, where he inadvertently attended his first socialist meeting during the 1905 revolution. In a highly memorable and traumatic encounter, he witnessed the brutality of the Cossacks against a protester, later recalling: "I was 15 years old and that day and that night I became a revolutionary". Travelling back from Siberia to Bryansk on the two-day train journey, he claimed he "had awoken to life", and within a year he was working for an illegal group distributing literature for the Social Democratic Labour Party amongst workers. Though he was to live in self-imposed exile in Europe and America for most of his adult life, he always lamented his distance from Russia, where he claimed his "consciousness was moulded".

Early Training

Gabo had no formal artistic training. He attended the local gymnasium in Kursk, before moving to Munich in 1911 to study medicine at his father's insistence, later recollecting that this was partly due to his ability to heal his mother's headaches with his hands. Two years later, he defied his father's wishes by transferring to study maths, natural and applied sciences, engineering, and, finally, philosophy. His scientific training would be put to good use in his later sculptural constructions, and it was in Munich that he became fascinated with Einstein and Bergson's radical theories of time. Gabo also began attending the art-history lectures of an influential tutor, Heinrich Wölfflin. Wassily Kandinsky's revelatory book on abstract art, *Concerning the Spiritual in Art* (1912), was gaining currency at this time, and fomented Gabo's interest in representing the structures and forces of nature. At the same time, he was moved by works that looked back to indigenous Russian artistic traditions, experimenting with romantic and expressive watercolors that drew heavily on the paintings of Mikhail Vrubel.

In 1913, at Wölflinn's suggestion, Gabo embarked on a six-week walking tour of Italy, viewing Michelangelo's *David* and other Renaissance and classical masterpieces. He later recalled that though such works had a profound effect on him, they "were all dead", and "it was nature that impressed him, not art". His tour was aborted early due to lack of funds and apparent feelings of loneliness. To a sibling he wrote: "I'm very sorry I've had to absorb such a mass of interesting impressions alone".

During 1912-13, Gabo made his first trips to Paris with his brother Antoine, to whom he was very close. Together they visited the Salon des Indépendants, exposing the young Gabo to the work of Picasso, Braque, Kandinsky, Delaunay, Leger, and others, and to the Cubist and Futurist ideas exploding onto the avant-garde scene. Around this time, he also saw many Post-Impressionist and Cubist works in Russia, where the entrepreneur and art-collector Sergei Shchukin exhibited his European collection regularly. With the onset of World War I, Gabo and his younger brother Alexei, also based in Germany, fled via

Copenhagen to neutral Norway, partly to avoid serving in the Imperial Army, and partly because, as Russian nationals, they were suddenly pariahs in their new home. This move gave Naum the excuse he had craved to abandon his studies and concentrate on his art. It was here he created his so-called *Constructed Heads*, signing them as Gabo rather than Pevsner to distinguish himself from his artist brother Antoine, who had joined Naum and Alexei in Norway, and to indicate a new, revolutionary direction in his art. Norway was quiet and tranquil. Surrounded by fjords, and mountains where they would ski on weekends, the brothers were funded by their father, thereby avoiding both paid work and the horrors of war in Europe.

As news of the February 1917 Revolution broke, Naum and Antoine returned home to Russia, in time for the Bolshevik coup of October 1917. Moscow was caught up in a tumultuous mix of revolutionary fervor and the strife of civil war. Gabo became acquainted with the multitude of Russian artists who had returned after the Revolution, engaged in the collective frenzy of attempting to express the spirit of Soviet society in art. Despite severe economic hardship, Gabo threw himself into the cause over the next five years, later recalling that "at the beginning we were all working for the Government". Meeting Trotsky on more than one occasion, during the early 1920s Gabo worked for the new Department of Fine Arts (IZO), dominated by abstracts artists at this time, which led him to work on a new art education program for schools, and on the single issue of the department Journal, *Izo*. At the same time, he was working on a series of increasingly abstract sculptural constructions. Gabo was, in fact, involved in the collective conception of what would become known as Constructivism. But while his artist comrade Vladimir Tatlin created raw, crudely assembled reliefs, Gabo's works were delicate and precise; at the same time, they had a distinct mechanical aesthetic, indicating his enduring fascination with science and engineering.

In 1920, Gabo exhibited in his first show, an outdoor exhibition in a bandstand on the Tverskoy Boulevard in central Moscow, with brother Antoine and Latvian artist and photographer Gustav Klutsis. The two brothers decided that the exhibition should be accompanied by a proclamation of their artistic ambitions, *The Realistic Manifesto*. This document, written by Gabo, made history, galvanizing the spirit of rebellion and the urgent desire for change amongst a huge swath of Russian culture at this time. Gabo and Pevsner distributed 5000 copies on the streets of Moscow, calling for a new art for the people, a "new Great Style" which would capture the spirit of an "unfolding epoch of human history". Foregoing the superficial abstractions of the Cubists and Futurists, and rejecting propagandist realism, the new art would use sculptural forms to present "depth" (empty space) rather than mass, and generate "kinetic rhythms" which would represent the element of time as well as the element of space. Over the next two years, while living and working in the turbulent environment of post-Revolutionary Moscow, Gabo began to fall out with other artists, in a pattern that would become familiar. He clashed with El Lissitzky, for example, over an article by Lissitsky which Gabo claimed had plagiarized concepts from *Realistic Manifesto*, speaking of a "dry and bitter spirit of hostility

between them". Less publicly, he derided Tatlin for "playing around with engineering forms and materials".

Already, Bolshevik Russia was becoming hostile to artists of the avant-garde, as the grim paradigm of Socialist Realism appeared on the horizon. In 1922, Gabo emigrated to Berlin, where he would remain for ten years, assisting shortly after his arrival with the organization of the *First Russian Art Exhibition* (1922) at the Van Diemen Gallery, sponsored by the Russian Ministry for Information. This show featured over 700 works, including paintings, sculptures, set designs, and architectural models, and was a significant event in the reception of Constructivism in Northern Europe. Gabo would go on to exhibit regularly with the revolutionary Novembergruppe artists - named after the month in 1918 when Germany's own socialist uprising had begun - and to make links with artists such as Hans Richter and Kurt Schwitters. Gabo was associated briefly with the Bauhaus School - then the hub of European Constructivism - lecturing and writing for their journal. Characteristically, though, he disagreed with some of their functionalist principles.

During his time in Germany, Gabo also worked with his brother, Antoine, who had settled in Paris in 1923, on the set for Sergei Diaghilev's ballet *La Chatte* (1927), and on other projects for Diaghilev's popular Ballet Russes company. Gabo also devised plans for architectural forms, such as skyscrapers and car-parks, which were never realized. By the early 1930s, the political climate in Germany had grown increasingly nationalistic, anti-semitic, and toxic. Gabo had underplayed his Jewish identity for most of his life, resisting categorisation as an artist by his ethnicity, but now, horrified by the rise of the Nazis, he became newly aware of his heritage. He would later remark that "if anyone made me a Jew, it was Hitler".

In 1932, Gabo fled the "unbreathable" atmosphere of Germany for Paris, where he would remain for four years. This was not a happy period for him, politically or personally. Though his work was critically successful, and he became associated with the Abstraction-Création group of Constructivist artists, Gabo sold very little, and suffered from anxiety, finding the French capital "complacent and superficial". He lacked confidence in his art, and there were tensions and jealousy between him and his brother. After visiting London in 1935, Gabo settled in England the following year.

Mature Period

By the time he reached England in 1936 Gabo was an internationally recognized artist, and he was welcomed warmly by British artists and critics such as Barbara Hepworth, her future husband Ben Nicholson, and Herbert Read, many of whom Gabo had met in Paris through Abstraction-Création. The same year he was introduced to Miriam Israels, who he would marry in 1937, with Nicholson and Hepworth as witnesses. Miriam had been married to a businessman, Cyril Franklin, with whom she had three children, but she ended her marriage shortly after meeting Gabo. The couple remained together for the remainder of Gabo's life, ironically supporting themselves initially with money from Miriam's ex-husband, as well as funds from occasional sales of Gabo's work. Many other

émigré artists were congregating in England at this time, including old friends: Oskar Kokoschka, Walter Gropius, Marcel Breuer, and Piet Mondrian. Mondrian was penniless when he arrived in London in 1938, and while Hepworth and Nicholson found him accommodation in Hampstead, Gabo supplied his companion from Abstraction-Création with clothes, furniture, and food. They resumed late-night conversations begun in Paris earlier in the decade, on Constructivism, Neo-Plasticism, and the illusionistic space of the painting.

The mid-1930s was an important period for British Constructivism, and Gabo and his associates wanted the world to know that the avant-garde had shifted from its Parisian base. Gabo exhibited, alongside many of his compatriates, in the ground-breaking *Abstract and Concrete* show at London's Lefèvre Gallery in 1936, and in 1937 he co-edited the hugely influential compendium of Constructivist art *Circle*, with Ben Nicholson and the architect Leslie Martin. Subtitled *International Survey of Constructivist Art*, *Circle* featured important critical statements as well as reproductions of key artworks, and reflected a cultural optimism that the impending conflict in Europe had yet to diminish. Despite this, the European art market was struggling and Europe seemed increasingly unsafe. Gabo had been in regular correspondence with Alfred H. Barr, founding director of the Museum of Modern Art in New York, later resulting in unrealized plans for a major exhibition of Gabo's work, and Gabo planned to resettle in the USA. But the outbreak of war forced a change of plans.

St. Ives, Cornwall had been home to a large community of artists since the 1920s, including Bernard Leach, Adrian Stokes, and the fisherman and artistic savant Alfred Wallis. With London in danger of Luftwaffe attacks, Hepworth and Nicholson had retreated to the Cornish coast, and St. Ives had seemed the safest option for Naum and Miriam too, though only temporarily. They moved there shortly before their planned journey to North America, but in September 1939, the passenger ferry the Athena was torpedoed by German submarines - the first such casualty of World War Two - and they were forced to cancel their trip. Instead, they remained in St Ives for seven years, meeting with other artists regularly at Adrian Stokes's coastal property to discuss, according to Gabo, "Cubism, Futurism, Constructivism, Eastern philosophies, and English marine traditions, behind the blackout curtains". Gabo was offered the studio behind Peter Lanyon's red house whilst the younger artist was away fighting.

Gabo found his time in Cornwall emotionally challenging, and he experienced severe creative block, potentially a psychological effect of the war: he was following developments in Europe with great anxiety, worried for his family, with whom he had all but lost touch. Gabo's émigré status didn't help matters. As a Russian, he was under constant suspicion, and had to report regularly to the police until 1941, when Britain and Russia became uneasy allies. Gabo also became alienated quite quickly from the St. Ives School, shutting himself away in his studio for days, and arguing with Nicholson and Hepworth after he accused the latter of stealing his ideas.

Nonetheless, Gabo began a creative diary during this period, and involved himself in a diverse range of projects, including creating plans for domestic interiors, and even

designing a car for the Jowett company in 1944 - though this plan fell through, with Jowett calling Gabo's concepts "radical but impractical". Gabo had also begun after his arrival in England to experiment with new materials such as Perspex and stone, influenced by the Direct Carving of Moore and Hepworth, though materials were increasingly hard to source, and sales were poor. The birth of a daughter, Nina Serafima, in 1941, also brought him out of a period of creative torpor. Shortly afterwards, having been offered £25 to make a small construction as a present for a friend, Gabo produced the first version of *Spiral Theme*, an important work which would take him in a new artistic direction, and lead to a renewed engagement with family and friends.

Due to the dearth of exhibitions and sales in war-time Britain, Gabo's time in England was not commercially successful, though he always looked back on it fondly. Nonetheless, in 1946, he and his new family finally made the long-awaited move to the USA, mainly on the promise of finding a more lucrative market for Gabo's work.

Late years and death

Naum, Miriam, and Nina lived in the USA for 30 years, settling briefly in New York, then moving to Woodbury, Connecticut in 1947. Away from war-torn Europe, Gabo found artistic freedom and financial security. He was also finally able to achieve a long-held ambition of creating large-scale, public works, receiving commissions from the Rockefeller Centre in New York in 1949, and the Baltimore Museum of Art in 1950 - though only the latter construction was realized, a hanging sculpture inspired by Alexander Calder (with whom Gabo would exhibit in 1953 at the Wadsworth Athaeneum) and Rodchenko. In 1950, Gabo began wood-block printing, an activity which would occupy him until his death, generating a significant body of work. In 1952, despite finishing ahead of 3,500 other artists, he was disappointed to be awarded second prize in the Institute of Contemporary Art's *Unknown Political Prisoner* international sculpture competition, his abstract monument design having been perceived to lack emotion. The same year, he became a citizen of the United States, and in 1953 the family moved to Middlebury, Connecticut.

During the 1960s-70s, a shift in public and critical opinion led to a newfound enthusiasm for large-scale, abstract sculpture, and these final decades of Gabo's life brought him unprecedented success, including a slew of international exhibitions, and notable retrospectives at London's Tate Gallery in 1966 and 1976. Since the 1950s, Gabo had been reworking many of his sculptural designs as public installations - including a 25-metre sculpture for the Bijenkorf Department Store in Rotterdam, completed in 1957 - and this activity gathered pace towards the end of his life. In 1976, Gabo's *Revolving Torsion* sculpture was unveiled by Queen Elizabeth II at the opening of St Thomas's Hospital in Central London. Gabo's health began to fail in his 80s, and he died in 1977 in Waterbury, Connecticut, following a long illness.

The Legacy of Naum Gabo

Gabo's influence on modern art has been profound, though it is sometimes underemphasized in art history books. In breaking down the boundaries between sculpture and architecture, integrating engineering techniques and scientific concepts into his creative process, and using industrial materials, he made a vital contribution to the development of Constructivist aesthetics. In Northern Europe, Gabo inspired a younger generation of artists, including the mid-century Concrete Artists - Theo van Doesburg, Max Bill, Joseph Albers - through his emphasis on elementary forms, and British sculptors such as Henry Moore and Barbara Hepworth through his use of stringing techniques, and his incorporated of empty space into the body of the sculpture. Gabo's pioneering experiments in the field of kinetic sculpture were advanced by the likes of Marcel Duchamp and Alexander Calder, and by the Kinetic Art movement of the 1950s-60s.