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Found technology: The art fabrication business of Jack Brogan

Honda, Margaret Miya, M.A.

University of Delaware, 1991

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**FOUND TECHNOLOGY:
THE ART FABRICATION BUSINESS OF JACK BROGAN**

**by
Margaret Miya Honda**

**A thesis submitted to the Faculty of the University of Delaware in partial
fulfillment of the requirements for the degree of Master of Arts in Early American Culture**

December 1991

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FOUND TECHNOLOGY:
THE ART FABRICATION BUSINESS OF JACK BROGAN

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TABLE OF CONTENTS

LIST OF TABLES	v
LIST OF FIGURES	vi
ABSTRACT	vii
INTRODUCTION: FABRICATION IN AMERICAN ART DURING THE 1960's	1
CHAPTER	
1 DESIGN CONCEPTS: A HISTORY	10
2 CASE STUDY: JOHN McCracken	19
3 THE STRUCTURE OF THE WORKPLACE	28
The Financial Structure	28
Production	28
Consulting	32
Labor and Space	33
4 CASE STUDY: ROBERT IRWIN	42
5 TECHNIQUE	49
Workmanship	49
Found Technology	52
6 CASE STUDY: LYNDIA BENGLIS	58
7 THE TECHNICAL ARTIST	65
CONCLUSION: THE CRITERIA FOR WORKING	72
CHRONOLOGY	76
BIBLIOGRAPHY	78

LIST OF TABLES

1. Changes in the physical scale of Design Concepts,
1965 - 1991. 36

LIST OF FIGURES

1.	Jack Brogan at work, 1989.	9
2.	Jack Brogan, mock-up of auxiliary power unit for an electric train, circa 1975.	17
3.	Jack Brogan, mock-up of a space station, circa 1970.	18
4.	John McCracken, drawing for a stainless steel column, 1988.	24
5.	Arturo Huerta polishing a John McCracken sculpture, 1989.	25
6.	John McCracken sculpture after being polished by Arturo Huerta, Alberto Tovar, and Tom Foster, 1989.	26
7.	Robert Irwin acrylic column installed at the Northridge Shopping Center, Northridge, California, 1971.	27
8.	Jack Brogan, design for turnbuckles, 1983.	38
9.	Shop interior with pieces slated for restoration, 1989.	39
10.	View of exterior workspace with portable tables, 1989.	40
11.	View of exterior workspace with portable table and make-shift shelter, 1989.	41
12.	Robert Irwin, "Fillegreed Line" installation, Wellesley, Massachusetts, 1979.	47
13.	Robert Irwin, "48 Shadow Planes" installation, Washington, D.C., 1983.	48
14.	Robert Irwin watching Jack Brogan finish the surface of an acrylic column with a hand-powered polishing tool, 1971.	57
15.	Lynda Benglis, early metalized knot with screen, cloth, and plaster understructure, circa 1973.	62

16. Lynda Benglis, wire mesh understructure, 1989. 63
17. Orlando Valle metalizing a Lynda Benglis knot, 1989. 64

ABSTRACT

The financial and operational structure of Design Concepts, the San Pedro, California business of Jack Brogan, was analyzed to determine what issues the art fabricator has responded to in terms of his work since 1965. Through oral histories, observations of working relationships between fabricator and current clients, and examination of archival evidence, the history of Brogan's activities was placed in the context of vernacular American industrial practices that date to the mid-nineteenth century. Through the use of "found technology," Brogan is able to produce artworks that address varying conceptual, stylistic, and technical concerns. Working with artists is a means for Brogan to pursue his own agenda of developing and applying tactile and empirical knowledge about materials and processes. Analyzing Brogan's way of thinking and working reveals what values, specifically improvisation and collective effort, are subsumed into the material landscape of the late-twentieth century.

INTRODUCTION: FABRICATION IN AMERICAN ART DURING THE 1960'S

In the catalog essay for the 1967 exhibition A New Aesthetic, held at the Washington Gallery of Modern Art, the critic Barbara Rose commented that "[Donald] Judd sends all his work to a commercial fabricator."¹ While Rose described Judd's case as "extreme," she did not mean to imply that either his method or his materials were curiosities. Rather, having work fabricated by a metal or plastics shop, in part or in whole, was discussed as being a normal situation among practitioners of a new style of art. And sending *all* of one's work to be done elsewhere was well within the spectrum of working methods at that time.

The making of an art work by someone other than the attributed artist is not a new concept to the twentieth century or earlier periods.² Additionally, the use of new materials and processes during the 1960's was not the first instance of radical practices in sculpture in this century.³ But for American art of the 1960's, those practices had a particular point of reference. The non-representational, geometric forms that came to be known as "Minimalism," "primary structures," and "ABC art" were produced, often with the help of a fabricator, to "leave no evidence of the 'artist's journey' " so that "the hand-

¹Barbara Rose, A New Aesthetic (Washington, D.C., Washington Gallery of Modern Art, 1967), 16.

²Marcel Duchamp employed printers, hardware supply houses, and his friends to produce his "boites-en-valise," the earliest of which was begun in 1936. Prior to that, European artists working within the medieval guild tradition had directed apprentices in the production of their work.

³Picasso's "Guitar" of 1912 made use of industrial materials; and Duchamp's "Bottle Rack," a ready-made from 1914, introduced the found object into the vocabulary of twentieth-century sculpture.

worked quality of expressionistic painting and sculpture is absent."⁴ The "specific objects" of A New Aesthetic, with their pristine surfaces and use of vacuum-formed plastic, polyester resin, and stainless steel, exhibited a level of physical control that appeared to be the complete antithesis of Abstract Expressionist painting and sculpture, which by then had become the prevailing academic style.

Minimalism did not constitute the first break with Abstract Expressionist ideology, but it did form a crucial episode in the development away from an art premised on individual originality, and towards an art responsive to an increasingly homogeneous culture.⁵ Along with Pop and Conceptualism, Minimalism called into question the context of artistic production and perception.⁶ The introduction of new materials and techniques were thought to "provide evidence of the penetration . . . of industrial modes into spheres (such as leisure, sport, and art) previously somewhat preserved from them."⁷

Because of its incorporation of plastics and metals, materials commonly associated with large-scale production, Minimalism elicited a critical response that involved the perceived unimportance of an artist's manual skills. The new materials were considered part of an industrial process that either could not be mastered by one artist and

⁴14 Sculptors: The Industrial Edge (Minneapolis, MN: Walker Art Center, 1969), 43.

⁵See Sidra Stich, Made in U.S.A.: An Americanization in Modern Art, the '50's and '60's (Berkeley and Los Angeles: University of California Press, 1987), 1-207, for a contextualization of post-World War II American art in terms of the social, economic, and political changes and tensions of the period.

⁶Hal Foster, "The Crux of Minimalism," in Individuals: A Selected History of Contemporary Art, 1945-1986, ed. Howard Singerman (New York: Abbeville Press, 1986), 162-194. Foster discusses pop and minimalism as being "different responses to the same moment in the dialectic of Modernism and mass culture. Both minimalism and pop confront, on the one hand, the rarified high artistic order of late modernism and, on the other, the spectacular mass cultural world of late capitalism . . ."

⁷Foster, "The Crux of Minimalism," 179.

therefore required a fabricator, or involved machines that superceded human skill. In either case, the idea that an artist no longer had to be challenged by his or her medium in the same way as the Abstract Expressionists indicated not so much a change in the artist's role as it did a changing view of that role. As Christopher Finch noted in the 1969 catalog for 14 Sculptors: The Industrial Edge:

The new art means nothing in itself--in the sense that it neither represents anything nor symbolizes anything--but the fact that it exists means a good deal. The artist has finally stepped aside from his art; the residue of skill--which had, in the past, been integral with the medium in which the artist worked--has become unimportant. In some instances it has been abandoned completely. . . . This in no way implies a reduction in the artist's role but simply indicates that his role has become more realistic.⁸

The absence of "the residue of skill" did not mean the absence of skill altogether. Finch revealed that Craig Kauffman's acrylic reliefs, which figured in both A New Aesthetic and 14 Sculptors, incorporated colored pigment that was "applied through carefully controlled spraying." For artists who did step aside from their art, the task of being a skilled worker fell to the fabricator. Finch discussed the cast polyester resin pieces of DeWain Valentine and Peter Alexander as being made of a material "difficult to use under any but controlled factory conditions."⁹ And, as Barbara Rose observed in A New Aesthetic:

To some degree, particularly in its admiration of craftsmanship, the new aesthetic calls to mind similar Precisionist concerns. But where the Precisionists like Sheeler admired the hand craftsmanship of the Shakers, young Americans today seek the high craftsmanship of custom fabricators.¹⁰

⁸Christopher Finch, "Meaning and Specificity," in 14 Sculptors: The Industrial Edge, 11.

⁹Finch, "The Venice Surface: Bell, Alexander, Valentine and Kauffman," in 14 Sculptors: The Industrial Edge, 30.

¹⁰Rose, A New Aesthetic, 14.

A common misunderstanding was that the "hard-edge" look had, as Rose put it, "more to do with Detroit than with Dessau."¹¹ But, as with Bauhaus objects, Minimal art was not necessarily mass-produced and often required labor-intensive methods, not a machine, just to erase the "hand" of the maker. Craig Kauffman pointed out the difficulty of working "directly with industry" when he wrote:

. . . the distance from the drawing board to the finished piece is a path filled with many mistakes, many hours on the road finding out information (most of which you can't get out of books), finding the proper people to do the job, the difficulty of getting work done in deference to more expensive industrial jobs, etc.,--and above all, great expense.¹²

Robert Irwin has also noted that his acrylic and metal disc paintings from the early 1960's required finding the right people to fabricate them, not just the right set of machinery.¹³ It was often the case that businesses outfitted with the needed tools and possessed of knowledgeable workers would not do unique objects because they could not be assured of a profit. Likewise, people who were interested in developing new ways of using existing technology often lacked experience and facilities.¹⁴

Kauffman and Irwin were not alone in recognizing that an artist often has visual and tactile requirements that cannot be adequately met by mass- or even small-scale

¹¹Rose, *A New Aesthetic*, 14.

¹²Craig Kauffman, quoted in Rose, *A New Aesthetic*, 51.

¹³Lawrence Weschler, *Seeing is Forgetting the Name of the Thing One Sees: A Life of Contemporary Artist Robert Irwin* (Berkeley and Los Angeles: University of California Press, 1982), 102-103.

¹⁴See Ruth Fine, *Gemini G.E.L. Art and Collaboration* (New York: Abbeville Press, Inc., 1984). There are numerous accounts of this situation throughout the book, which covers the development of the Gemini G.E.L. press from its founding in 1965. Also, John Coplans noted that "Larry Bell takes a wide variety of techniques and extends them to a point beyond even industry's interest." John Coplans, "The New Sculpture and Technology," in *American Sculpture of the Sixties*, ed. Maurice Tuchman (Los Angeles: Los Angeles County Museum of Art, 1967), 22.

production methods. Writing in 1970 about fabricators used by Los Angeles artists, Michael Compton, in a catalog essay for the Tate Gallery in London, found that a shop's flexibility was the most important factor in assuring that an artist's needs were met. He observed that something "more open-ended than either the traditional paint suppliers art foundries [*sic*] and stretcher makers in one direction or traditional factories at the other is vastly more congenial and adaptable than either to the artists' needs."¹⁵ In suggesting that the commercial fabricator most suited to working with artists may be dealing with something even more complex than the parameters of art or industry, Compton pointed to the need to reevaluate the framework of production in which fabricators' methods had been categorized.

To date, the study of fabricators has formed only a small part of art historical research and has tended to focus on the artist's agenda and context, leaving those of the fabricator not as rigorously questioned.¹⁶ If one considers that a fabricator may not be responding to art issues, but is instead responding to conditions that might parallel or intersect those issues, the need for a different approach becomes apparent.

¹⁵Michael Compton, Larry Bell, Robert Irwin, Doug Wheeler (London: Tate Gallery, 1970), 12.

¹⁶Michael Compton, Larry Bell, Robert Irwin, Doug Wheeler, includes some discussion of the working methods of the artists and the nature of the fabrication industry in Los Angeles during the late 1960's. Hugh M. Davies, Artist and Fabricator (Amherst, MA: Fine Arts Center Gallery, University of Massachusetts, 1975), provides an overview of working methods employed by Lippincott, Incorporated of North Haven, Connecticut, producers of large-scale sculpture. Through interviews with artists and fabricator Donald Lippincott, Davies discusses the structure and development of the business as being driven by a market demand for a factory that catered to clients who did unique or speculative pieces. Ruth Fine, Gemini G.E.L. Art and Collaboration, is a monograph about the history of the Gemini G.E.L. press in Los Angeles. Fine discusses Gemini's willingness to expand their operation beyond printing to accommodate the research and production needs of their artists. Also noteworthy is Bonnie Clearwater's inclusion of Ron McPherson's engineering report on Ed Ruscha's painted panel commission for the Dade County, Florida public library. Ron McPherson, "Engineering Report on the Materials and Fabrication of the Rotunda Panels," in Edward Ruscha, ed. Bonnie Clearwater (Lake Worth, FL: Lannan Museum, 1988), 137.

The field of material culture has thus far provided the broadest base of models for looking at the particular position of the fine art fabricator in American industry, owing to the fact that both the field itself and the fabricator are multidisciplinary in approach. Eugene Ferguson and John Kouwenhoven have demonstrated that individual modes of production have historically provided the basis for defining the nature of industrial work.¹⁷ Specifically, Kouwenhoven demonstrates a pattern in American technology in which the production of tools and products is marked by improvisation and reliance on an empirical attitude rather than theory. The worker's relationship to the machine, rather than the machine's relationship to the product, is of importance in Kouwenhoven's analysis, as it is in the writings of David Pye. In The Nature and Art of Workmanship, Pye develops a system of understanding production based not on hand or machine operation, but on the extent to which the worker directly determines the outcome of an object's qualities.¹⁸ As a consequence, workmanship can be understood as an undertaking with specific goals besides those expressed by the designer of an object. By starting with the object and addressing how and why the fabricator produced it, a more developed understanding can be had of what the activity means to the art.

As a case study, Design Concepts, the San Pedro, California shop of Jack Brogan was selected. A fabricator who has worked with artists from 1965 to the present, Brogan has had continual and widespread influence (fig. 1). His earliest clients included Robert Irwin, Peter Alexander, and Larry Bell, all of whom were integral to defining the

¹⁷Eugene Ferguson, "On the Origin and Development of American Mechanical Know-How," Midcontinent American Studies Journal 3 (Fall 1962): 3-16; Eugene Ferguson, "Toward a Discipline in the History of Technology," Technology and Culture 15 (January 1974): 13-30; John Kouwenhoven, Made in America: The Arts in Modern Civilization (Newton Centre, MA: Charles T. Branford Co., 1948).

¹⁸David Pye, The Nature and Art of Workmanship (Cambridge: Cambridge University Press, 1968).

concerns of California-based Minimalism. For the past twenty-five years, Brogan has worked with artists who remain within the critical dialog, such as Lynda Benglis, Chris Burden, Dan Flavin, John McCracken, Bruce Nauman, Alexis Smith, and James Turrell.

Brogan aids in a viewer's interpretation of an artist's concepts, thus providing a significant, at times irreplaceable, contribution to the careers of the people with whom he works. Because generally only the artist is credited with the work, Brogan escapes the critical review to which his clients are subjected, but he also remains invisible in terms of history. However, his efforts do undergo an unofficial critique, usually verbal in nature, that has formed a network of uncoded knowledge among those who have worked with him. Through oral histories, the examination of archival evidence, and observation of working relationships with artists, it is possible to formulate questions about Brogan's intent and, ultimately, how his intentions affect those of his clients.

Brogan's business is marked not only by the diversity of aesthetic and conceptual concerns he has successfully addressed, but by the fact that Design Concepts evolved from an industrial fabrication shop into an art fabrication shop. Central to this study is an examination of the ways the existing business structure did *not* change over time to accommodate the production of art. Brogan's approach to fabrication has remained consistent for over twenty-five years, and the continued viability of his business points to the validity, over several decades, of a more risk-oriented, more cerebral mode of production in art. Additionally, the presence of his methods in diverse works represents a similar approach to the production of different critical styles. The rationale behind Brogan's business structure provides another set of reasons why certain art looks the way it does, reasons that address the context of the producer and not just the consumer.

A study of one fabricator out of a field of dozens will provide singular results. Jack Brogan's methods are his own, and other fabricators who work on a similar scale may or may not work in similar ways. While this study does not attempt to provide an industry-wide overview, in its focus it will look at the development of concept and style as those things are affected by the structure of a business and individual working relationships. It is hoped that the findings presented here will induce inquiry into the many fabricators who, due to exigencies of time and space, could not be addressed.



Figure 1. Jack Brogan at work, 1989. (Photo: Brent Riggs.)

CHAPTER 1

DESIGN CONCEPTS: A HISTORY

At its inception in 1965, the focus of Jack Brogan's business, Design Concepts, was "fabrication on a custom basis for builders, architects, and industrial designers."¹⁹ As a private consultant to larger operations, Brogan initially did not place himself in the position of working with visual artists, and instead concentrated on commercial commissions. Within one year of opening the business, Brogan's first formal working relationship with an artist was established when Robert Irwin hired him to fabricate an acrylic sculpture. Due to the success of that project, Irwin began referring other artists to Brogan, and over the course of sixteen years, the type of business conducted evolved from non-art fabrication to fine art fabrication and related activities.

The change in focus was due, in part, to the location of Brogan's shop from 1965 to 1975. Brogan originally operated out of a building on Lincoln Boulevard in Venice, California, less than one mile from the Mildred Avenue studios of Irwin, Peter Alexander, Ron Davis, and other artists, many of whom showed a predilection for materials such as polyester, fiberglass, and concrete, and, consequently, could benefit from a fabricator's technical knowledge. While artists did not immediately flood Brogan's shop with requests, those he initially worked with all had studios in close

¹⁹The history of Brogan's various business activities was gathered during an interview with the author on 6 January 1989.

proximity to his business.²⁰ By 1967, art fabrication accounted for ten percent of the business' gross annual receipts. By 1975, when the business expanded to new quarters in San Pedro, California, that figure had increased to eighty-five percent.²¹

The presence of a new market alone did not facilitate change in the business. The transformation of Design Concepts was possible primarily because the extant production methods, financial structure, and philosophy allowed Brogan both to begin collaborating with artists and to develop working methods that could be incorporated into art fabrication and restoration projects. The production of art, with its extreme variation in materials, format, and intent, was not significantly different from what Brogan was already doing prior to establishing Design Concepts. Between 1962 and 1965, Brogan produced promotional products for various businesses using the techniques of silkscreening, metalworking, and woodworking. For Design Concepts, Brogan often constructed prototypes of objects that would eventually be produced in a wholly different manner. For a model of a telephone, wood was carved and lacquered to look like injection-molded plastic; for a model of a train engine, plastic was formed and painted to look like metal (fig. 2). Brogan also designed and installed interiors for showrooms, and produced promotional items such as display booths. Items such as maps for commercial developments, like the industrial prototypes, were approached as unique objects. The interiors of an optometrist's office and an elevator car were also dealt with as situations with singular solutions, not unlike the installations Brogan would later work on with Robert Irwin. It was the nature of his work with prototypes that he had to develop

²⁰Peter Alexander, who at the time was working on cast resin sculptures, was referred to Brogan by Robert Irwin. Other early clients included Jim Ganzer, Ron Cooper, and David Bungae, whose studios were next to that of Alexander.

²¹Jack Brogan, account books, 1965-1975.

techniques and use new materials with each commission, and each piece of art that he did was, in essence, a prototype.

In accounting for the multifariousness of his non-art output, Brogan explains that he "took the jobs that nobody else wanted to do."²² Considered from a fiscal and technical point of view, Brogan's response reveals the underlying tenet of his business strategy. The business was set up, with regard to equipment and financial structure, to be as flexible as possible in terms of how things were produced. Brogan started Design Concepts with small-scale equipment purchased for a cabinetmaking business that he owned between 1961 and 1962. Machinery such as the table saw, drill presses, belt sanders, grinding wheels, and clamps could be used on wood, metal, plastic, and cardboard. By electing not to make an initial investment in machinery that was geared towards one type of production or production in only one material, such as the forming and shearing machines found in metal shops, he was not limited to working in a particular format or material in order to gain a return on his capital investment. The lack of that type of constraint made it financially and technically feasible for Brogan to take on jobs that required the making of unique objects, experimentation with methods, or the use of multiple materials.²³ Before he devoted more than fifty percent of his business to art,

²²Brogan, interview with the author, 6 January 1989.

²³In 1972, Brogan placed a series of advertisements in the *Wall Street Journal*, three of which read as follows: "DESIGN CONCEPTS Offers a unique and successful solution to the problem of store design and remodeling," *The Wall Street Journal* 87 (September 18, 1972): 5; "DESIGN CONCEPTS Is uniquely equipped for custom fabrication and limited production runs in all materials." *The Wall Street Journal* 87 (September 22, 1972): 2; "DESIGN CONCEPTS Offers full design and development service for new products and production techniques." *The Wall Street Journal* 87 (September 26, 1972): 17. Taken as a whole, the language of the advertisements suggests the business's capacity to address projects of a wide-ranging nature, with an emphasis on non-standardized solutions.

Brogan was functioning in a manner that would accommodate the production of such work.

Although Brogan lacks formal training in any field, the diversity of his past experience has influenced the way he chooses to run his business. Brogan began woodworking at the age of twelve in his native Tennessee, and ran his own custom furniture shop in Los Angeles from 1961 to 1962. Before he arrived in California in 1958, he worked as a truck driver, sold produce, owned and operated a general store, and worked in an automotive factory in Michigan. Additionally, he worked as a pattern maker and a chemical analyst, and operated a concrete block business. Brogan's business strategy has been informed, not by scholarly training or a background in commerce, but by learning how to approach material problems in a multitude of working conditions. Brogan has suggested that his business, even before he worked with artists, was about "perfecting techniques," something that would indicate as great an interest in process as in product.²⁴

The structure and philosophy of Design Concepts is grounded in Brogan's personal history as well as the history of Los Angeles industry since World War II. Writing in 1970 for the Tate Gallery's exhibition Larry Bell, Robert Irwin, Doug Wheeler, Michael Compton discussed the use of new technologies and materials by the three Los Angeles-based artists as being "peculiarly possible in Los Angeles."²⁵ He noted:

²⁴Brogan, telephone interview with the author, 17 October 1988.

²⁵As an arts writer, Compton was not alone in recognizing new technologies as being prevalent in the Los Angeles area. See Jules Langsner, "America's Second City," Art in America 51 (April 1963): 127-134. Langsner notes: "Thanks . . . to the extraordinary rate of change in the sciences and technology, the climate of experience in the United States is undergoing extraordinary changes. Nowhere else can those changes be perceived as distinctly as in Southern California." See also, Barbara Rose, "Los Angeles:

What happens typically is that an artist like Bell or Irwin, needing to realise some new idea, will acquire machinery or involve commercial workshops, in each case employing technicians or specialists. They will quickly perfect techniques and media and, in effect, tool up for the job. This whole apparatus (materials, people, machinery, ideas) becomes the medium and is played with, exploited and adapted until it becomes boring or until new ideas render it obsolete, when it is scrapped or merged in a new medium.

What makes this peculiarly possible in Los Angeles is the unique and, to a foreigner surprising, number of craft industries in the area. Although the automobile customising and prop and scene building departments of the movie and television studios may be the most spectacular of such industries, the very high rate of cultural obsolescence and the parochial structure characteristic of the city cause them to flourish in every area. Moreover, these are not old fashioned conservative crafts but are the up-to-the-minute skills of small competitive groups of men, usually pragmatic and self-taught.²⁶

What Compton pointed to was the existence of small industries such as Design Concepts which, due to their emphasis on "custom" work, were compatible with the needs of artists.

If Brogan's approach has been well-suited to the concerns of artists for the past twenty-five years, it initially addressed and benefitted from the economic climate of Los Angeles during the 1960's. Between 1965 and 1975, Design Concepts was receiving up to thirty percent of its business from defense contractors such as the Lockheed Corporation, and from the Garrett Corporation which contracted with the National Aeronautics and Space Administration. The growth of the aerospace industry in Los Angeles during and after World War II, with its attendant development of satellite industries, is a factor that came into play well before the 1960's. The establishment of the aerospace industry by the 1940's allowed for the growth of research and technology interests so that, by the 1960's, the level of technology being practiced in Los Angeles in

The Second City," *Art in America* 54 (January-February 1966): 110-115. Rose discusses "the strength of the craft tradition and the interest in craft as an independent esthetic end in itself."

²⁶Compton, "Three Artists from Los Angeles," in Larry Bell, Robert Irwin, Doug Wheeler, 12.

preparation for sending astronauts to the moon was beyond what was practiced in most of the world. The result of much research was applied to civilian products; materials such as fiberglass and urethane foam were being used in surfboards by the mid-1950's.²⁷ The application of products and much of the prototype work was carried out by small subcontractors such as Brogan (fig. 3). New materials and processes, and the people who wanted to develop new and profitable ways of using them, were more readily available in Southern California than in virtually any other region of the country.²⁸

By the mid-1970's, the defense industry contracts, specifically those from N.A.S.A., were decreasing in number, so Brogan made an effort to align himself more closely with the art community, which was his other main source of income. During the period when commercial contracts were decreasing in number, Brogan applied for and received two National Endowment for the Arts visual arts fellowships. Through the "Services to the Field" program, Brogan received a five-thousand dollar grant in 1974 and a seven-thousand-five-hundred dollar grant in 1980. While the 1980 grant supported research for a Robert Irwin project, the 1974 grant was used to conduct a "New Materials and Methods" course at the University of California, Irvine.²⁹ Brogan was available

²⁷Charles Eames is best known for having utilized technology developed during World War II in the design and production of furniture. Upon arriving in Los Angeles in 1941, Charles and Ray Eames developed the technology for their molded plywood chairs and worked concurrently on molded plywood splints and litters for the United States Navy. Between 1950 and 1953, the Eames office worked with Zenith Plastics of Gardena, California to produce a molded plastic armchair utilizing fiberglass reinforcement, a technique used during the war on plastic radar domes for airplanes. John Neuhart, et al., Eames Design: The Work of the Office of Charles and Ray Eames (New York: Harry N. Abrams, Inc., 1989), 27-35, 139.

²⁸The situation of industry in Southern California during the post-World War II period is assessed in two seminal studies: Carey McWilliams, California, the Great Exception (New York: Current Books, 1949) and Carey McWilliams, ed., The California Revolution (New York: Grossman Pub., 1968). See also, John Caughey and Laree Caughey, Los Angeles: Biography of a City (Berkeley and Los Angeles: University of California Press, 1976).

²⁹I am indebted to Silvio Lim of the National Endowment for the Arts, Washington, D.C. for providing me with this information. The "Services to the Field" program, which was eliminated in 1981, extended

several hours per week to provide technical support for student projects, and the grant was intended to defray consulting costs. Brogan noted that, "When I was working in Venice, I would spend most of my day just giving out information. So that's what the first grant was for."³⁰ But the course itself, which was aimed at graduate students and eventually encompassed faculty and individuals outside the university community, served to introduce Brogan to prospective clients and to alert him to new directions in art. In light of the situation with commercial contracts, Brogan's 1974 N.E.A. grant can be seen as having wider-reaching purposes than financial remuneration. The fact that Brogan applied for the grant when he did marks a conscious effort to conduct market research and pursue a clientel that had hitherto approached his business at a more gradual pace.³¹

The transition of Design Concepts from a non-art to a fine art fabrication firm resulted from both a need to further develop an existing source of income, and a desire on the part of Brogan to continue working with prototypes and unique objects. What facilitated that change were factors that had been in place before Brogan began working with artists. While the initial location of the shop in Venice, close to the studios of artists such as Robert Irwin, proved to be advantageous for the business, the regional economy during the mid-century laid the foundation for how and why Brogan was able to structure his company as he did.³²

financial assistance to critics, publications, restoration projects, craftsmen, and other individuals and organizations that provided support services to visual artists. Silvio Lim, telephone interview with the author, 14 June 1991.

³⁰Brogan, quoted in Margaret Honda, "Interview: Jack Brogan," *Visions Art Quarterly* 4 (Summer 1990): 30.

³¹Brogan's most noteworthy contacts included Chris Burden, who requested Brogan's assistance with his "B-Car," and Alexis Smith, who worked with Brogan on subsequent projects.

³²Brogan has noted that, in addition to the presence of the defense industry, the port of Los Angeles, with its constant influx of raw materials provided "the bigger advantage of working here." With an economy directed more towards the service sector than manufacturing, the situation has changed somewhat.

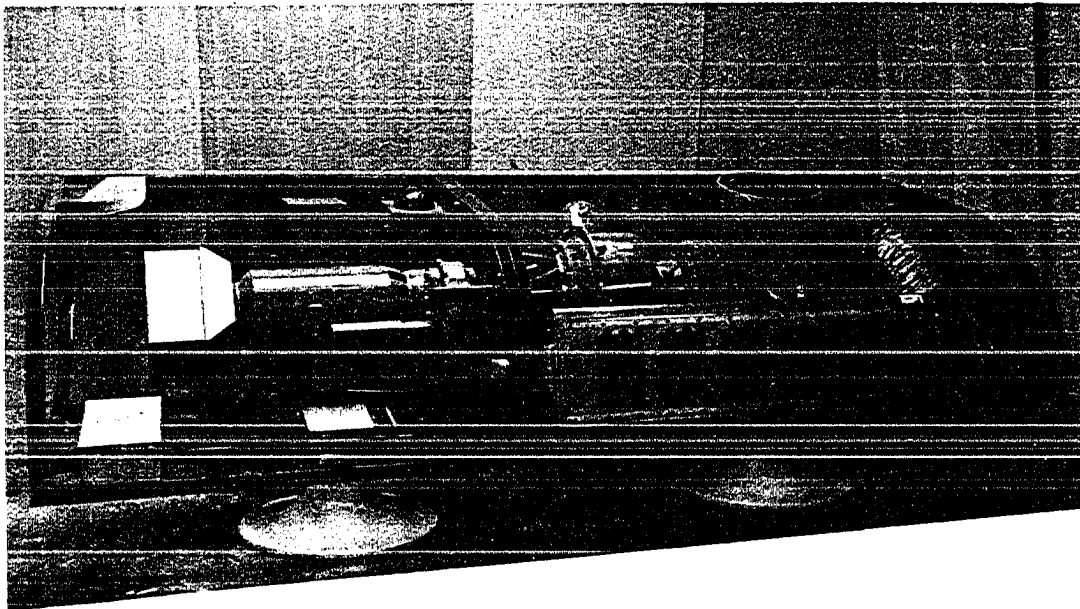


Figure 2. Jack Brogan, mock-up of auxiliary power unit for an electric train, circa 1975. Received as a subcontract from the Garrett Corporation, the prototype incorporated wood, metal, and plastic. (Courtesy Jack Brogan.)

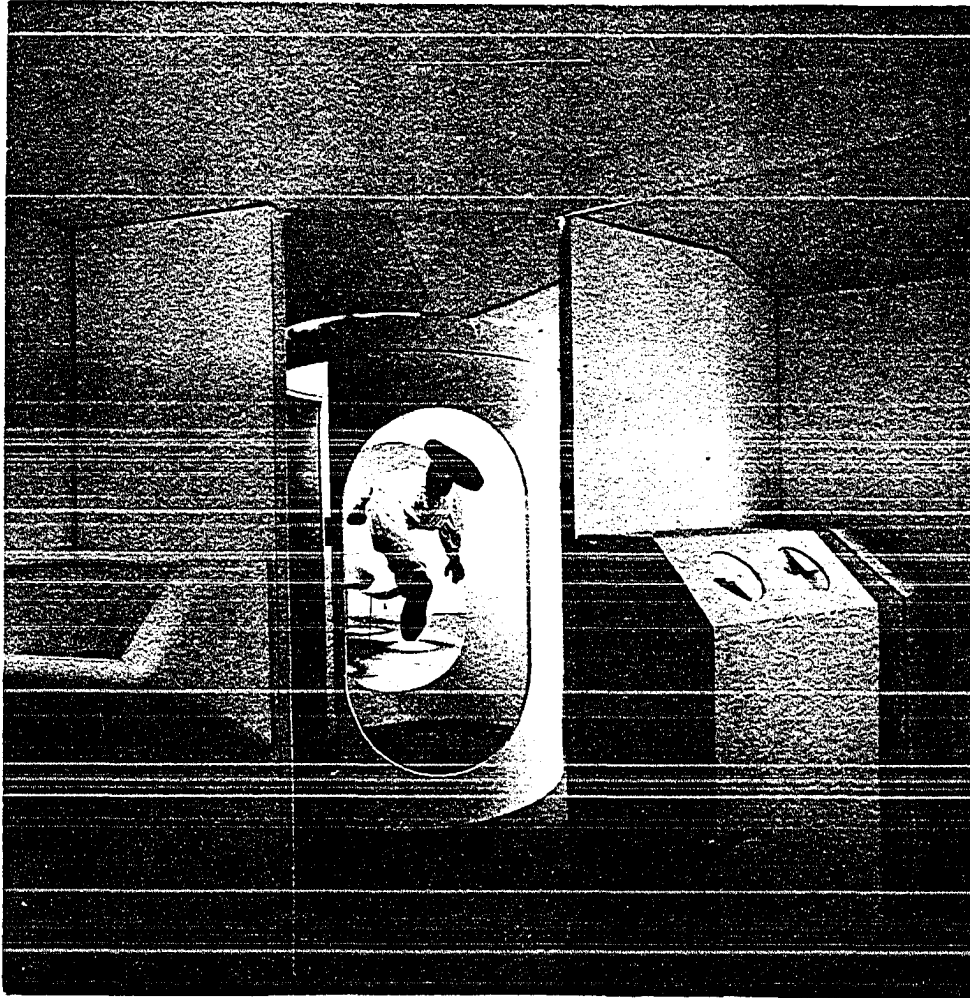


Figure 3. Jack Brogan, mock-up of a space station, circa 1970. The National Aeronautics and Space Administration contracted the prototype to the Garrett Corporation; it was then subcontracted to Brogan. The wash basin at left is made of lacquered wood meant to simulate plastic. (Courtesy Jack Brogan.)

CHAPTER 2

CASE STUDY: JOHN McCracken

John McCracken approached Brogan early in 1988 because the artist was dissatisfied with the efforts of another fabricator. McCracken had designed a series of stainless steel sculptures that were to be the equivalent of what he had previously produced in wood and polyester resin, works most noted for their geometric shapes, mirror-like surfaces, and saturated color.³³ McCracken initially went to a sheet metal fabricator in Los Angeles, but the piece that was produced exhibited concave, rather than flat, surfaces, and the mirror finish desired by the artist was beyond the standards of production used by that shop.³⁴

In noting that "The first fabricator couldn't understand what I wanted," McCracken identified the primary difficulty in producing his work as one of

³³Since the early 1960's, McCracken has built most of his work, most frequently pouring a coat of polyester resin over a plywood and fiberglass understructure. With a highly polished surface, the intent is that the form should be the point of reference, not the materials; the object should look like it is a solid mass of whatever the surface is. In discussing a blue wall plank, McCracken noted, "I like that the piece is a rectangle made out of blue. The surface is not enough like any other material to bring up other associations." John McCracken, interview with the author, 2 February 1989. McCracken's concerns are primarily perceptual and metaphysical, but in the context of this study, only those of production will be addressed. For a thorough examination of the artist's conceptual concerns, especially as they relate to the dominant critical issues of the 1960's and 1970's, see Anne Ayres, "Connecting Heaven and Earth: The Angelic Madness of John McCracken," in Heroic Stance: The Sculpture of John McCracken, 1965-1986, ed. Sue Henger (Newport Beach, CA: Newport Harbor Art Museum; New York: P.S. 1, The Institute for Art and Urban Resources, Inc., 1986), 28-40.

³⁴As with Brogan, Donald Lippincott of Lippincott, Incorporated specifically addresses the problems inherent in artwork that transcends standard specifications. His business was established because "Either people weren't interested in trying to help [artists], or when [artists] went to a fabricator the cost was too great or the engineering problems seemed to be staggering." Donald Lippincott, quoted in Davies, Artist and Fabricator, 37.

communication.³⁵ Most of the important communication about any project involves visual rather than verbal understanding, so written specifications are of limited value. In his initial meetings with both fabricators, McCracken was trying to describe something he had never seen before, as the process of forming and polishing the stainless steel pieces rejects any notion of a standardized set of references and procedures. The artist's drawing only indicates the measurements for cutting the metal (fig. 4); it cannot convey, in haptic terms, what is meant by "flat" and "mirror finish."

Brogan was provided the same information as the first fabricator--a set of line drawings and a verbal explanation of what was desired by the artist--and he produced the work by the same processes of shearing, welding, and polishing the metal. The reasons Brogan proved more technically proficient than the previous fabricator can be found in the specifics of the labor and the history of techniques used in his shop.

McCracken said that Brogan "had to learn things, too, to make the process efficient and profitable."³⁶ Essentially, Brogan had to understand, through the costly process of trial and error, the amount of deviation allowable in the relative flatness of the surfaces. Because Brogan lacks the facilities to cut large expanses of stainless steel, he had the material cut by a sheet metal shop.³⁷ Rather than sending McCracken's drawings to the shop, he translated each rendering into a metal template, thus providing a physical guide for the work. Prior to being welded, each structure was individually engineered by

³⁵McCracken, interview with the author, 2 February 1989.

³⁶McCracken, as well as Brogan, offered that "Most of the cost is in the labor." The artist himself recognizes that the process requires more time than would be considered cost-effective by any other business. McCracken, interview with the author, 2 February 1989.

³⁷Brogan does not stock sheet metal, nor does he have the equipment necessary to cut stainless steel. For McCracken's work, he purchases the amount of steel needed and has it cut by Marine Sheet Metal in Los Angeles. Jack Brogan, John McCracken file, 1988.

Brogan to determine the placement of interior reinforcements that prevent the metal from distorting.³⁸ Because each piece is a different size and shape, there have been false starts and failures throughout the entire body of work. Of the thirty-three pieces Brogan produced for McCracken, one required a second attempt at setting the reinforcements and one was unusable due to the poor quality of the metal.

It was in the treatment of the surface that Brogan's efforts differed most dramatically from those of the previous fabricator. Rather than using a bench grinder, all of the polishing was done with hand-held electric grinders, a more time-consuming process in which a worker completely controls the outcome. A piece that measured seven feet tall, two feet wide, and one and one-half feet deep took approximately eighty hours to polish, or one person working two weeks full-time.³⁹ Often, two people will work on a project that large, but in the final stages, when touch and sight are most crucial, the task usually falls to one person (fig. 5). Alberto Tovar, Brogan's assistant, mentioned that the intensity of concentration involved with polishing a piece invariably gives everyone a headache from eyestrain, and only incidentally from the noise of the grinding wheels.⁴⁰

McCracken suggests that heightened attention to process on the part of the maker is necessary in order that the workmanship is not the focal point, noting that, "Ironically, I find that really excessive crafting is distracting. However, with simple

³⁸The engineering of a piece requires some experimentation as it must take into account not only the size of the object but also the stresses inherent in the material, the stresses that will be applied from the heat of welding, and those introduced by the polishing process. According to Brogan, the previous fabricator's lack of success with this step was due either to ineptitude, or to his reliance on a generalized approach to engineering.

³⁹In preparation for McCracken's October, 1988 exhibition at the Fred Hoffman Gallery in Santa Monica, California, Brogan temporarily hired six people to assist with polishing the thirty-three pieces.

⁴⁰Alberto Tovar, interview with the author, 26 January 1989.

forms, the workmanship would be potentially distracting if it were careless."⁴¹ Brogan originally aimed for providing a finish that was in excess of what the artist had indicated, but once McCracken saw what could be done, he and Brogan became more demanding of the workmanship. What happens in such interchanges is that Brogan must refine his visual acuity to determine not only what results McCracken wishes to achieve, but also any improvements that he might be capable of producing. Brogan had to develop finer compounds for the last stages of polishing in order to achieve the mirror-like surface (fig. 6). As the compounds became available, four of the early pieces were refinished once, and two of those were refinished a second time.⁴²

Though McCracken and Brogan maintain that neither one originally knew exactly what they were trying to achieve with the stainless steel pieces, Brogan's comprehension of McCracken's needs was based on experience with the artist's work, as well as deduction. In the mid-1970's, Brogan had repaired the finish of a resin piece by McCracken, and so had previous experience in dealing with the salient properties of the artist's workmanship, albeit in a different material. Brogan's success with the surface finish of the stainless steel pieces was due, in large part, to the fact that the polishing technique was already within his repertoire. Brogan pointed out that "getting McCracken's pieces to that level involved stages of improvement. If we'd started from scratch, we wouldn't have been able to accomplish [the finish]."⁴³

⁴¹McCracken, telephone interview with the author, 10 April 1989.

⁴²Because a superior surface finish was a possibility as Brogan developed finer polishing compounds, the surfaces of the earlier pieces were, in his words, "improved and perfected" rather than "redone." Brogan, telephone interview with the author, 10 June 1991.

⁴³Honda "Interview: Jack Brogan," 30.

From 1965 to 1971, Brogan produced a series of thirteen acrylic prisms for Robert Irwin in which he polished the surface to optical clarity (fig. 7). The process required experimentation with various compositions and grades of polishing oxides, and Brogan eventually had to develop hand-powered tools for the final stages of polishing. While the exact technique of polishing a solid piece of acrylic was not directly transferable to thin sheets of stainless steel, Brogan had developed the tactile sense of what was necessary for McCracken's work twenty years previous. Moreover, the concept of the surface functioning as a reference point for an idea was something that Brogan had mastered with Irwin's work.

Brogan suggests that maintenance of techniques is as important as their initial development; had he not had occasion to polish other objects, McCracken's work would not have been possible. The consistent flow of restoration work through Brogan's studio has afforded him the opportunity to practice his polishing technique, especially on Irwin's acrylic disc paintings and Peter Alexander's acrylic columns which are usually sent to him because they require surface refinishing. In the case of Irwin's acrylic discs, Brogan has had to perform techniques that the artist himself developed, but no longer has command of. When Irwin suggested, "I couldn't repair the discs; that has to do with really knowing the materials," Brogan concurred by noting that "Irwin would have to learn how to manufacture the discs again. It's all technique, and if you don't use it, you lose the ability to do it properly."⁴⁴ The success of individual projects in the 1980's is indicative of a general approach to production that has been maintained for twenty-five years. It is not so much that things are getting easier; rather, the results of previous research are being incorporated into the work of new clients.

⁴⁴Robert Irwin, interview with the author, 1 February 1989; Brogan, interview with the author, 2 February 1989.

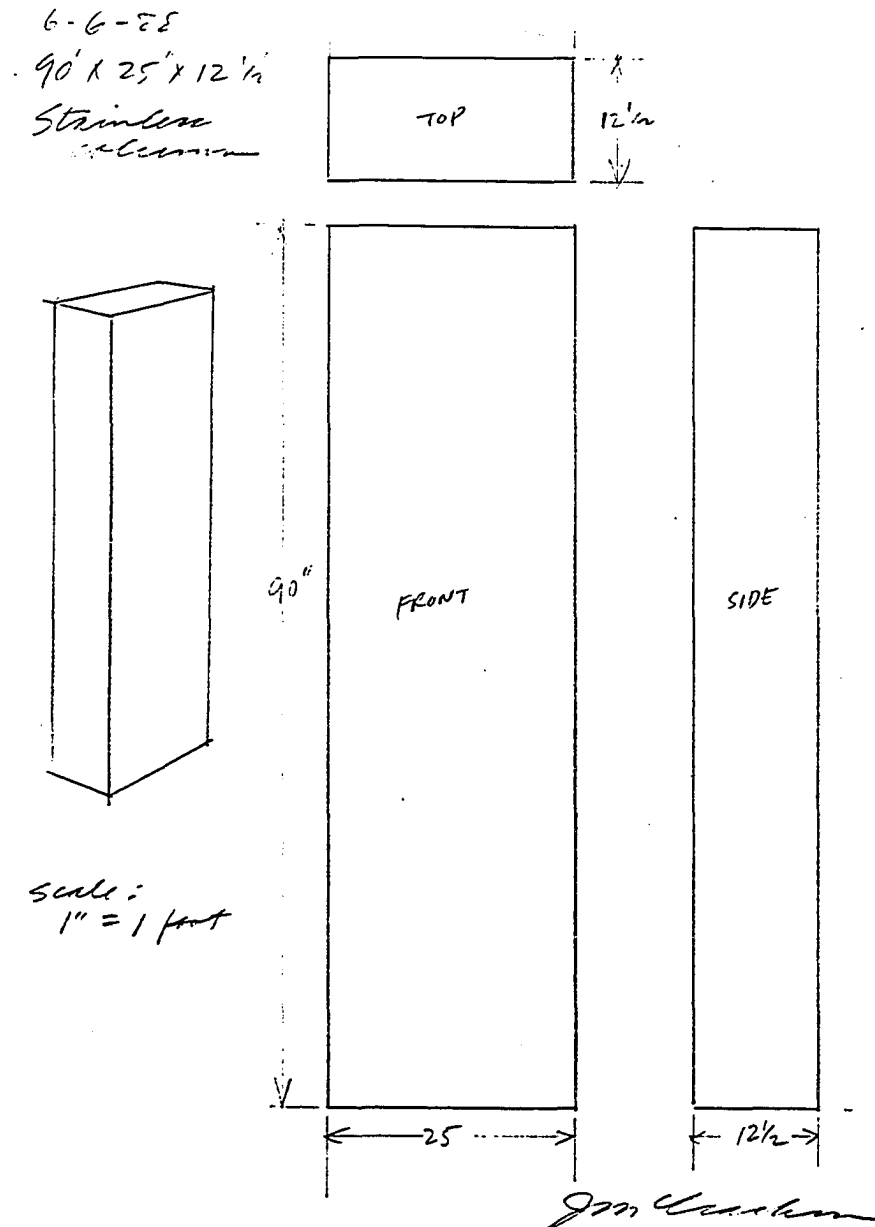


Figure 4. John McCracken, drawing for a stainless steel column, 1988. (Courtesy John McCracken.)

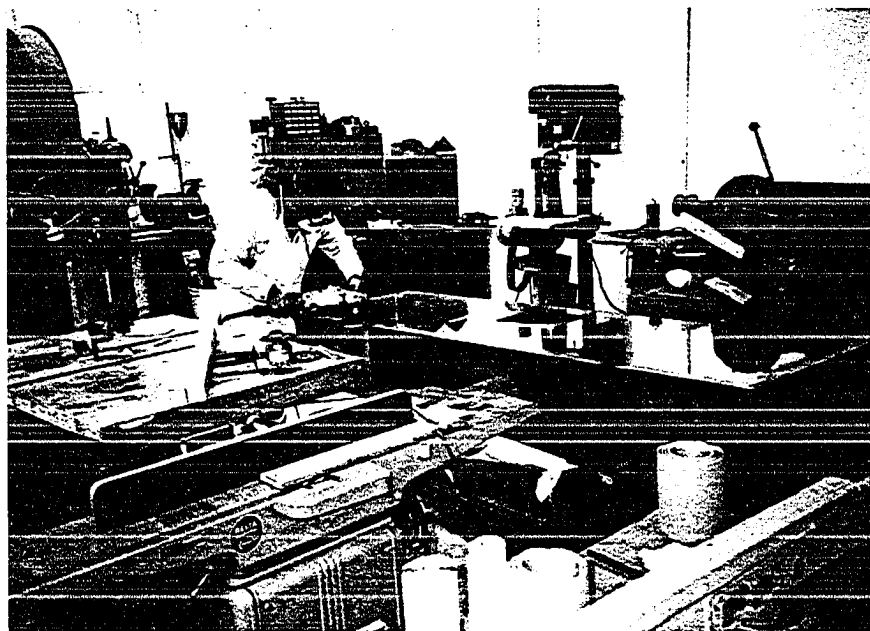


Figure 5. Arturo Huerta polishing a John McCracken sculpture, 1989. Also pictured are machines such as the band saw, bench grinder, and belt sander that can be used on a variety of materials. (Courtesy Jack Brogan.)



Figure 6. John McCracken sculpture after being polished by Arturo Huerta, Alberto Tovar, and Tom Foster, 1989. The low distortion of the surface is evident in the reflection of the workers. (Courtesy Jack Brogan.)

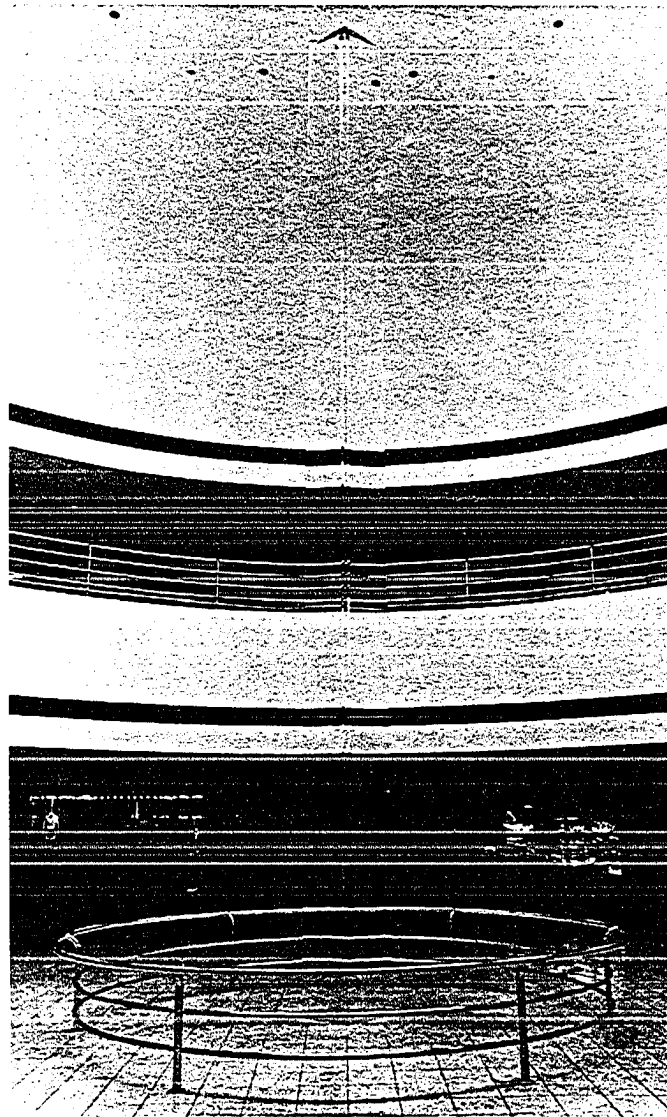


Figure 7. Robert Irwin acrylic column installed at the Northridge Shopping Center, Northridge, California, 1971. (Courtesy Jack Brogan.)

CHAPTER 3

THE STRUCTURE OF THE WORKPLACE

The Financial Structure

In terms of experimental work, technical ability alone does not lend itself to success with a project. If an artist desires something other than what is normally produced by a shop, but which may require some of the same machinery, experimentation can drive the cost of labor and materials beyond financial affordability for the artist, and can result in time away from a shop's more profitable jobs. The problems inherent in making art require that a business have in place a financial and operational structure to support the activity, or that the extant structure be adjusted to fit the needs of the client.

Production

As the number of art commissions increased, the profit margin of Design Concepts declined, and it was not until 1981 that Brogan was in a strong enough financial position to devote close to ninety percent of his business to art-related activities.⁴⁵ Due to the increased amount of time and money that went into activities directly related to, but not resulting in, a saleable product, such as experimentation with materials and development of techniques, the production of art had to be subsidized initially by

⁴⁵Brogan never stopped doing commercial commissions. However, since 1981, commercial commissions have been received on an intermittent basis, and in deference to art commissions. Additionally, between 1981 and 1984, he owned a welding shop that was used partially in support of the production of art.

commercial commissions and more recently by art restoration jobs. In reconciling the way he makes money with the way he makes art, Brogan has continually been faced with the need to support decisions that are financially unprofitable but technically challenging.

When Brogan began working with artists, virtually every project was speculative in nature, with no guarantee that the art would sell or that Brogan would be paid in full for his efforts. Within the past twenty-five years, at most only two projects per year have been commissioned pieces for which the artist has already received funding and Brogan is assured of payment. Additionally, decisions about taking on a project are based on Brogan's opinion of how worthwhile it would be to address a certain technical or aesthetic problem.⁴⁶ Clients approach Brogan at all stages in their careers, but selections are not limited to well-known or financially successful artists.⁴⁷ If a less financially stable artist poses an interesting technical problem, Brogan will agree to more lenient financial terms.

John McCracken originally designed his stainless steel sculptures in the late 1970's, but could not afford to have them produced until the late 1980's.⁴⁸ Even though he was in a stronger financial position when he approached Brogan, the cost of the

⁴⁶Brogan does not base his decisions solely on material questions, as he also considers the relevance of the work to its time. As a matter of economic survival, he must be as attuned as his artists to the state of the art market and critical dialogue.

⁴⁷Brogan has never advertised his services as an art fabricator and instead relies on a network of current and former clients for referrals. As his clients have gained increased critical recognition, he has benefitted from editorial exposure in the form of catalogs, books, and journal articles about the artists and himself. See Jack Brogan: Projects (Pasadena, CA: Baxter Art Gallery, 1980); Louise Lewis, "Jack Brogan, Art Catalyst," Artweek 11 (June 21, 1980): 1; Weschler, Seeing is Forgetting the Name of the Thing One Sees: A Life of Contemporary Artist Robert Irwin; Robert Irwin, Being and Circumstance: Notes Toward a Conditional Art (Larkspur Landing, CA: The Lapis Press, 1985); Honda, "Interview: Jack Brogan," 28-31; Susan Krane, Lynda Benglis: Dual Natures (Atlanta: The High Museum of Art, 1990).

⁴⁸McCracken, interview with the author, 2 February 1989.

research had to be spread out over time. If Brogan had not made alternative financial arrangements for McCracken and other artists, the work either would not have been produced, or, in the words of artist Robert Therrien, "It would be different work and it would probably be falling apart."⁴⁹

Initially, "more lenient financial terms" meant that Brogan was willing to spend more time than an artist would be billed for in developing and producing the work. Brogan does not charge artists an hourly fee for research and development, since he finds that doing so "limits how far you go in terms of developing a process." Instead, he will charge an artist for a percentage of the time he spends on a piece, and subsidize the rest through other jobs.⁵⁰ Such a situation was initially possible because of the existence of commercial jobs that were not speculative and that could be billed at a higher rate.

As the number of commercial jobs decreased, the cost of doing research was increasingly figured into the cost of doing business. Brogan began putting fifty percent of his profits from the business back into research for art-related activities; he currently puts between thirty and forty percent of the profits back into research, but still devotes the same amount of time to developing processes and materials.⁵¹

Besides planned research, unanticipated occurrences add to the cost of a piece, since solving any problems can be a time-consuming process. A 1983 Robert Irwin piece in the Stuart Collection at the University of California, San Diego provides one example

⁴⁹Robert Therrien, interview with the author, 19 January 1989.

⁵⁰There is rarely enough similarity between projects on which to base a standard schedule of fees, so individual financial arrangements are established with each artist based on Brogan's contribution to the work, and the artist's financial situation. An artist might order a piece and make payments, or pay Brogan after something sells. Brogan, interview with the author, 6 January 1989.

⁵¹The change in numbers reflects the overall change, during the past twenty years, in the manner by which payment is received, and financial commitments outside the business, as well.

of the type of unforeseen work that might be required of Brogan. The untitled piece consists of several lengths of fence material held taut by stainless steel pipes. Prior to installing the piece, Brogan had an engineer design the footings for the steel pipes and analyze the selected materials for strength. Despite the precautions, the fence span sagged once the piece was installed, so Brogan had to develop a means of supporting the weight of the fence unobtrusively. The solution was to install a series of cables that hooked onto the poles and could be tightened with turnbuckles (fig. 8). Mathieu Gregoire, a sculptor, fabricator, and the project manager for the Stuart Collection, noted that "Everything is a prototype and these projects are really agonizing for the fabricator. There is some sort of major foul-up with every project." In suggesting that "There is a real fine difference between something looking horrible and okay," Gregoire pointed out that the fabricator takes on the added responsibility of assuming the visual standards of the artist, something which can lead to additional work, but also to an enhanced reputation among current and potential clients.⁵²

Brogan is particularly interested in developing long-term relationships with his clients, and notes that "if you look at things over the long term, you can allow for developing your techniques and the artists' ideas."⁵³ More importantly, the initial cost of research can be recovered over the course of several years, a situation that is less burdensome for the artist and more beneficial for the business. Because Brogan often spends more time than he can hope to be paid for on developing a process, the method of payment might include several pieces, usually ten to fifteen percent of the entire body of work he produces. Such a situation works best with artists who have established

⁵²Mathieu Gregoire, telephone interview with the author, 8 February 1989.

⁵³Brogan, interview with the author, 6 January 1989.

reputations and whose work can easily be sold on the secondary market. By establishing such alternative financial arrangements, Brogan is loaning the cost of his labor to an artist's career in the hopes that he will see a greater return through increased sales and returning clients. For the most part, artists who have been able to maintain the longest working relationships are those who have developed financial backing through galleries, collectors, and public and private commissions. It was those artists, such as Robert Irwin and Lynda Benglis, who were able to provide a measure of financial stability as Brogan began working with more artists and fewer commercial clients.⁵⁴

Consulting

As Brogan became known to dealers and collectors through his artists, he began to receive art restoration and installation jobs for which he could charge a set fee, usually ten percent of the current market value of a piece. As the number of commercial commissions decreased, the two to three restoration and installation jobs that Brogan works on concurrently with the new work became increasingly important as a means of generating income and, since 1981, has served the purpose of subsidizing the production arm of the business. Pieces to be restored come from private and public collections that usually have sufficient funds to meet the cost. Thus, restoration work, in part, "fills the

⁵⁴The increased demand for Benglis' sprayed metal sculptures within the past ten years has caused a corresponding increase in the selling price and, consequently, in Brogan's commission. By maintaining a consistent working relationship with Benglis, Brogan has been able to work on other projects that are more technically challenging but less financially remunerative. Additionally, Brogan's association with Robert Irwin resulted in commercial commissions. As a participant in the Los Angeles County Museum of Art's "Art and Technology" program of 1968-1971, Irwin and James Turrell collaborated with Dr. Ed Wortz of the Garrett Corporation on a series of sensory experiments. Wortz met Brogan through Irwin and, throughout the early 1970's, commissioned prototypes of a space station and a train engine. Jack Brogan, Garrett Corporation file, 1970-1975.

gaps of new pieces that don't work out financially," as does the installation of large-scale works for which Brogan charges an hourly consulting fee.⁵⁵

Brogan has established working relationships with dealers and collectors in much the same manner and to the same effect as he has with artists. Los Angeles gallery owner Daniel Weinberg knew of Brogan "through his collaboration with Robert Irwin" and initially sent him a damaged Irwin acrylic disc painting in 1977.⁵⁶ Weinberg works with several art conservators depending on the medium and the nature of the problem; for Brogan he reserves problematic objects that sometimes require the same amount of research as the new work.⁵⁷

Labor and Space

Because he does all the research and development himself, Brogan prefers to work with only three artists at a time, and has established a scale to his operation that accommodates his working methods. The business has always operated with between four and nine assistants who must be willing to work with varying techniques and materials, not only on different jobs but also on the same job.⁵⁸ Although a person may be expert at welding or polishing, he or she must also develop other skills in the course of working

⁵⁵Brogan, interview with the author, 6 January 1989.

⁵⁶At the time, Weinberg's gallery was located in San Francisco. While Brogan receives the majority of his consulting business from the Southern California region, he also receives work from throughout the United States, usually in relation to the work of his artist clients.

⁵⁷Weinberg notes that Brogan "is one of a small handful of restorers internationally who are able to handle difficult restoration projects." Weinberg sent Brogan a Bruce Nauman painting in which the rubber cement on the surface was disintegrating, a project that required the development of a technique to stabilize the surface. Daniel Weinberg, telephone interview with the author, 8 February 1989.

⁵⁸Brogan has periodically fired employees who are unwilling to do more than one task, as he did in 1988 when a welder was reluctant about also grinding or polishing some stainless steel sculptures. Brogan, interview with the author, 19 January 1989.

for Brogan. In order that his shop may continue to be viable, Brogan must ensure that his work force can meet the demands of the commissions, not so much in terms of a particular skill but in terms of their ability to develop multiple skills. Because nobody is trained to be a fabricator, much of the activity that goes on in Brogan's shop is being learned even as it is being applied to the actual commissions. Brogan hires employees from diverse backgrounds; of the four current employees, one is a recent graduate of art school, another ran a welding shop, and two were cabinetmakers.⁵⁹

Design Concepts has operated out of a succession of four pre-existing spaces.⁶⁰ As with all the previous spaces, the current structure, formerly a machine shop, demonstrates a mixed-use approach to the work area. Certain pieces of machinery, such as the bench saws and drill presses, remain in a fixed location indoors, but most of the work is done with hand-held implements and is carried out where space permits. Of the 8,200 square feet of work space, 5,000 are outdoors and can be used throughout the year. Some techniques, such as metal spraying or grinding, usually must be done outdoors due to ventilation considerations. Within the shop, there is no evidence of a strict division of space or a corresponding division of labor (fig. 9, 10, 11).

⁵⁹All but one of Brogan's nearly 100 previous assistants have been men. This has also been the situation at Lippincott, Incorporated, for which all the fabricators have been male. The gender-specific nature of most fabrication shops has been determined, in large part, by the recent history of the industries from which workers are culled. While women worked in heavy and light industry during World War II, the social and economic climate during the post-war era caused a reversion of their jobs back to a predominately male workforce. At the New York fabrication firm of Tallix, Incorporated, the vast majority of workers in the metal fabrication and casting departments are men; those in the patination and clerical departments are women.

⁶⁰In 1975, Brogan designed a 6,000 square foot building to his complete specifications. It was never built due to a zoning change for the property. The building at 13327 Beach Avenue, Venice, was purchased in 1972 as it was being constructed and was completed to fit the needs of his business with high ceilings, unobstructed spaces, ventilation systems, and loading doors.

By way of contrast, Tallix, Incorporated offers foundry and fabrication services in an environment more akin to that of mass-production. As a result of expansion and investment policies, the company is more rigidly structured in the set-up of labor and space.⁶¹ Originally established as a bronze casting foundry in 1970 by metallurgist Richard Polich, the business was initially housed in a 1,000 square foot building. The company now occupies three structures in Beacon, New York that provide 80,000 square feet of interior work space.⁶² Each element of casting--mold-making, wax finishing, pouring, patination--is attended to by a separate staff in distinct areas. Additionally, there are specific areas and staff for metal fabrication and painting. Most of the 152 employees are hired to perform one task only and much of the work is produced as multiple editions. Due to its size and the specificity of the operations involved, the company can work simultaneously on projects involving up to 200 artists.⁶³ Tallix relies on a volume of clients to support its vast foundry and the compartmentalized structure of its labor force. As a result, the company is limited in terms of the diversity of its output.⁶⁴

⁶¹Information about Tallix was collected during a site visit and an interview with Chris McGrath, Public Relations Director of Tallix. Both were conducted 2 March 1989.

⁶²Additionally, Tallix has expanded its operations on a national level. Tallix Morris Singer began operating a 20,000 square foot foundry in January, 1991 in Oakland, California.

⁶³The sculptor Wade Saunders has expressed the idea that, "Today foundries are so compartmentalized, and casting techniques so refined that sculptors are consumers, not makers." Wade Saunders, "Hot Metal," *Art in America* 68 (June 1980): 88.

⁶⁴Lynda Benglis, who works with both Brogan and Tallix, noted that she had to request that Tallix purchase the metal spray machines necessary for her work and, also, that she had to train the workers how to use them. Lynda Benglis, interview with the author, 26 January 1989.

Brogan currently has no plans for expansion, and between 1965 and 1987, he actually reduced the physical scale of the workplace, as the following table indicates.⁶⁵

Table 1. Changes in the physical scale of Design Concepts, 1965-1991.

<u>Dates occupied</u>	<u>Location</u>	<u>Size in square feet</u>
1965-1972	1905 Lincoln Boulevard Venice, California	6,900
1972-1975	13327 Beach Avenue Venice, California	5,200
1975-1987	2937 Pacific Avenue San Pedro, California	2,500
1987-1988	431 West 10th Street San Pedro, California	11,200
1988-1991	431 West 10th Street San Pedro, California	8,200

Downsizing the operation was not solely a response to negative financial conditions. What causes Brogan to maintain a consistent size to his business, despite the fact that he turns down at least half of the more than forty requests for new work he receives per year, is his desire not to change the nature of his work. Robert Irwin has suggested that "The problem with expanding is finding [assistants] who are that versatile," either from their own experience or in their ability to work outside the limits of specialized training, such as welding or woodworking.⁶⁶ Brogan equated expansion with a change in the mode of production when he said, "I couldn't turn things out over and over. I actually thought about doing that in the past, but I'm glad I didn't because

⁶⁵Brogan, interview with the author, 1 May 1989.

⁶⁶Irwin, interview with the author, 1 February 1989.

you have to expand to that point and pretty soon you're into an industrial thing."⁶⁷ A larger volume of work would not necessarily mean more interesting projects, and Brogan expresses few regrets about having to turn down jobs that are not technically challenging, or for which he lacks time or space.⁶⁸

⁶⁷Honda, "Interview: Jack Brogan," 31.

⁶⁸Brogan has repeatedly discussed his desire not to be bored with his work and has said, "The project I'm working on now is the most interesting. Otherwise, I wouldn't be doing it." Brogan, telephone interview with the author, 17 October 1988.

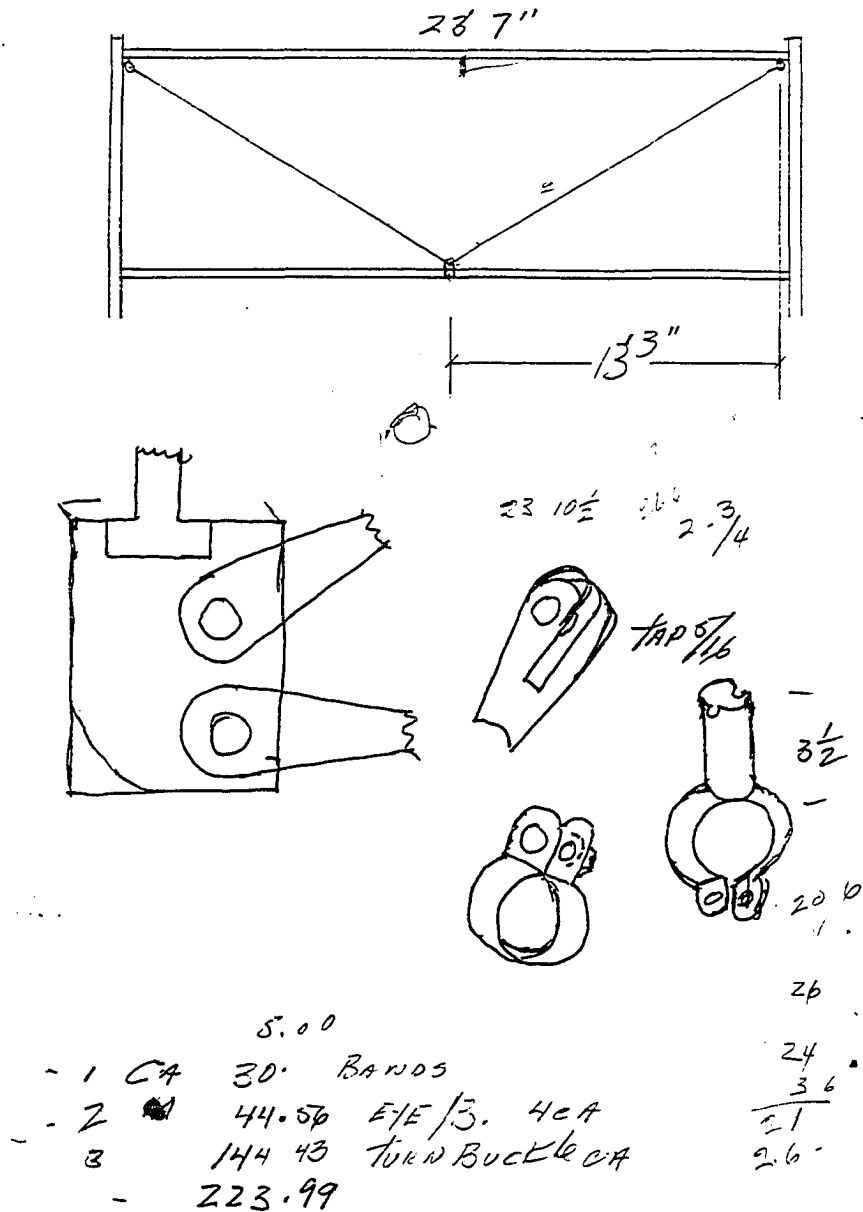


Figure 8. Jack Brogan, design for turnbuckles, 1983. (Courtesy Jack Brogan.)



Figure 9. Shop interior with pieces slated for restoration, 1989. (Courtesy Jack Brogan.)



Figure 10. View of exterior workspace with portable tables, 1989. (Courtesy Jack Brogan.)

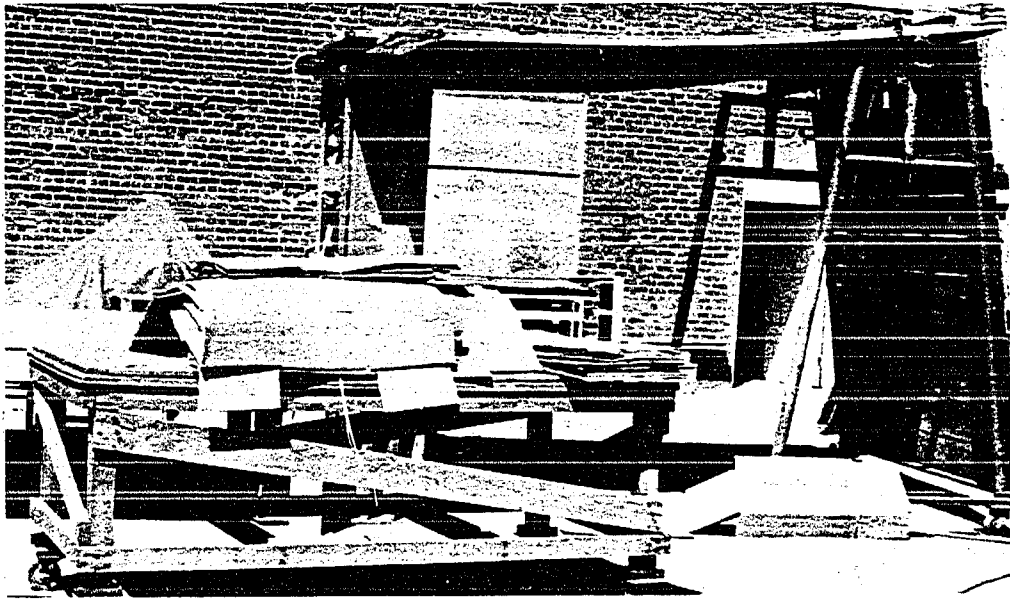


Figure 11. View of exterior workspace with portable table and make-shift shelter, 1989. (Courtesy Jack Brogan.)

CHAPTER 4

CASE STUDY: ROBERT IRWIN

John McCracken has voiced the opinion that seeing the work in order to make aesthetic decisions is most important, and that learning technical processes is not a crucial part of his work as an artist. He has said:

Having a piece fabricated is not much different than producing it in my own studio. I get impatient about the amount of work I have to do to make a piece. I use a fabricator because it would be silly for me to learn how to weld and grind metal. You want to be appropriate about what you do yourself and use the proper resources.⁶⁹

Robert Irwin expressed similar concerns when he emphasized the fact that his primary interest is the aesthetics of a piece; since he does not have the time to develop expertise in the number of materials and processes he now deals with, by necessity he must turn to others for advice. Echoing Brogan himself, Irwin suggested that, "It's far too limiting for an artist to specialize in one material only. What's important is to learn how to approach and solve problems; once you develop that skill, then you can do anything."⁷⁰

Since Irwin and McCracken both developed processes for the work considered most emblematic of their ideas, both are cognizant of how attention to physical labor affects the development of a piece and the development of an idea. When Irwin speaks of the limitations of working in one material, he points not only to the dangers of

⁶⁹McCracken, interview with the author, 2 February 1989.

⁷⁰Irwin, interview with the author, 1 February 1989. In his book, Being and Circumstance: Notes Toward a Conditional Art, Irwin speaks of a " 'phenomenal art,' with none of the customary abstract limitations as to form, place, materials, and so forth . . ." Irwin, Being and Circumstance, 29.

repetition and stagnation in one's work, but also to the fact that the amount of time and money involved in getting the workmanship to a level where it can most effectively support the concept is, under certain conditions, time away from developing the idea. Working with Brogan can relieve an artist of the cost of machinery and materials necessary to develop specific skills.

Originally a painter, Irwin has become known more for his working method than for any particular format or material. Projects such as "48 Shadow Planes" in Washington, D.C., and "Fillegreed Line" in Wellesley, Massachusetts, were conceived not to invent a new way of looking at things, but to elevate the viewer's awareness of the inherent and much-practiced act of perceiving.⁷¹ Although Irwin still physically alters a space, sometimes through the addition of objects, his intent is that the work should function as a visual "cue," not the subject matter. The great irony of art informed by such concerns is that the object must be expertly crafted in order for it *not* to be the subject of the work. Irwin's pieces require the extensive planning and workmanship that Brogan offers so that, to the eye, they can dismiss the relevance of their making.

Irwin has suggested that his association with Brogan has made possible the current situation in which he works in response to public spaces. While Brogan did not introduce Irwin to a new way of thinking either about production or about the basic tenets of his work, he did make it easier and faster for the artist to develop ideas that were already in place, primarily through a more effective use of time. By 1962, Irwin's paintings were already addressing optical concerns that were, essentially, the forerunner of his interest in phenomenology. In 1964, one year prior to working with Brogan, Irwin had produced metal and acrylic disc-shaped paintings, and free-standing bent glass

⁷¹Irwin, Being and Circumstance, 29.

sculptures, all with the aid of fabricators. However, he was working with people whose business interests were focused on a single material or process; with Brogan, Irwin had access to a more consolidated resource situation. As Irwin pointed out, "Having one person as a resource is the biggest asset. Before I met [Brogan], I would drive all over the place and find the stuff."⁷² For Irwin, Brogan has produced or researched projects in cast acrylic, stainless steel, concrete, and graphite epoxy, and has installed work using any manner of construction methods. In essence, he has been instrumental in realizing Irwin's mature ideas.

If Brogan cannot do something himself, which is often the case with public projects such as Irwin's, he will direct the work to the appropriate resource. The design for "Fillegreed Line," a 1979 outdoor piece for Wellesley College, called for a three-eighths inch thick sheet of stainless steel to be pierced by a leaf pattern, like that thrown by shadows (fig. 12). Since the combination of an intricate pattern with stainless steel meant that conventional shearing methods could not be used, Brogan had to locate an alternate method or suggest revisions for the project. Through a contact in the aerospace industry, Brogan located a plasma cutter, a computer-operated machine designed specifically to cut through metal with a laser beam.⁷³ In that instance, Brogan's position was identical to the artist's in that both lacked the proper equipment at hand.

Although it would have been possible for Irwin to do the project on his own, it is not probable that he would have done it to the same effect and within the same amount of time as Brogan, primarily because he lacked the type of contact Brogan had

⁷²Irwin, interview with the author, 1 February 1989. Irwin worked with California Metal Spinning and California Glass Bending, both in Los Angeles, and a plastics company in Orange County, just south of Los Angeles.

⁷³Jack Brogan, Robert Irwin file, 1979.

with resource people in various industries. Because Brogan had been working for fourteen years as a fabricator for architects, construction companies, and the aerospace industry, he was known through his work to people in other fields. The people with whom he dealt had a frame of reference for the type of work he did, and he already possessed an understanding of how to operate within their system, especially in terms of speaking a common technical language.⁷⁴ As a result of his past working situation, he is a major resource for artists in terms of facilitating the production of work, as well as fabricating it in his studio.

Brogan's network of contacts became increasingly integral to his job as artists such as Irwin began moving their work out of the realm of objects. Since the early 1970's, Brogan's major contribution to Irwin's work has been as a contractor. Site conditional pieces such as Irwin has done for the past twenty years involve, at the very least, the efforts of engineering firms, trucking companies, equipment rental firms, suppliers, and workers.

For "48 Shadow Planes," a 1983 piece in the atrium of the old Post Office Building in Washington, D.C. (fig. 13), Brogan hired the Los Angeles firm of Martin Associates to do the structural engineering. The materials--metal pipe, cable, scrim, and fasteners--were obtained and partially constructed in Los Angeles and driven by truck to the site. Brogan also hired an electrician to design and fabricate the wire scaffolding for the piece.⁷⁵ While Brogan does not always do every aspect of a project himself--either

⁷⁴Donald Lippincott also pointed out that, in contracting work out to other shops, a fabricator can generate interest in a project in a way that artists may not be able to do, primarily because, "We're able to talk to people in a language they understand, such as industrial terminology. By doing so, they will take the job seriously." By establishing that both parties are working from a common set of reference points, it is more likely that both parties can then understand how the desired outcome of a project might extend beyond those reference points. Donald Lippincott, interview with the author, 1 March 1989.

⁷⁵Brogan, Robert Irwin file, 1983.

the preliminary work which is often done in consultation with engineers, suppliers, and shippers, or the assembly at the site which is done with the assistance of his employees--he is responsible for seeing that the entire process of fabrication provides a suitable translation of the artist's ideas. Although Brogan carries out preparatory work for Irwin's projects in Los Angeles, assembly and construction can take place virtually anywhere in the world.⁷⁶

During the 1980's, Irwin began working with other fabricators on his site projects, for, as he points out, "Due to funding, it's usually better to get local people." The artist, however, has expressed the fact that he prefers to work with Brogan because of his experience with past projects. Because he has provided the physical format for so many projects, Brogan's contributions can be seen as an identifying component in terms of the overall effect he has had on Irwin's work and career. His presence in the development of Irwin's work does not constitute a style so much as a support system for the ideas. In discussing his nearly thirty-year working relationship with Brogan, Irwin readily admits, "My association with Jack enabled me to work the way I do now. I can call him and ask him which direction to go in with a project. Jack influenced my thinking in terms of how I solve problems."⁷⁷

⁷⁶Brogan has travelled to Amsterdam, as well as various cities throughout the United States, to install Irwin's work.

⁷⁷Irwin, interview with the author, 1 February 1989.

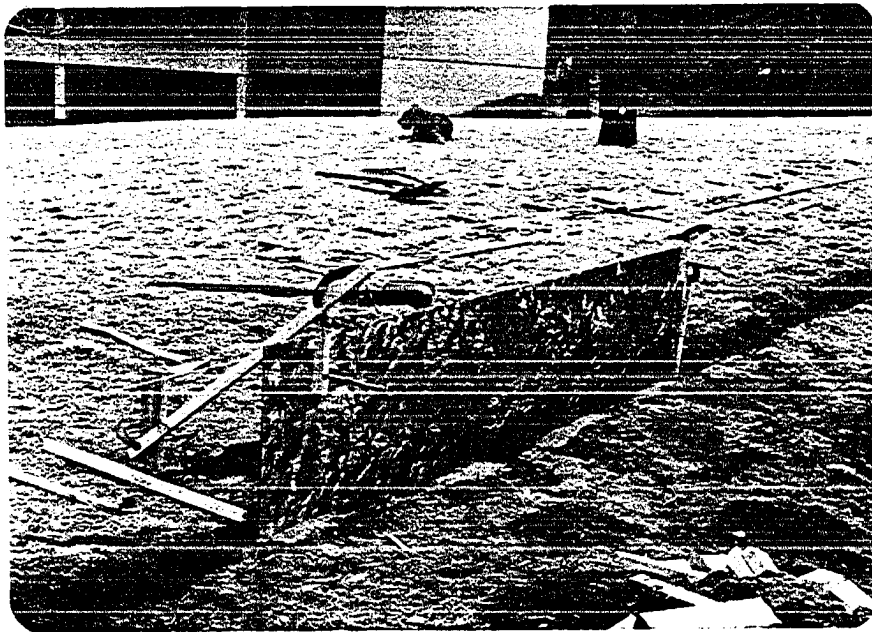


Figure 12. Robert Irwin, "Fillegreed Line" installation, Wellesley, Massachusetts 1979. (Courtesy Jack Brogan.)

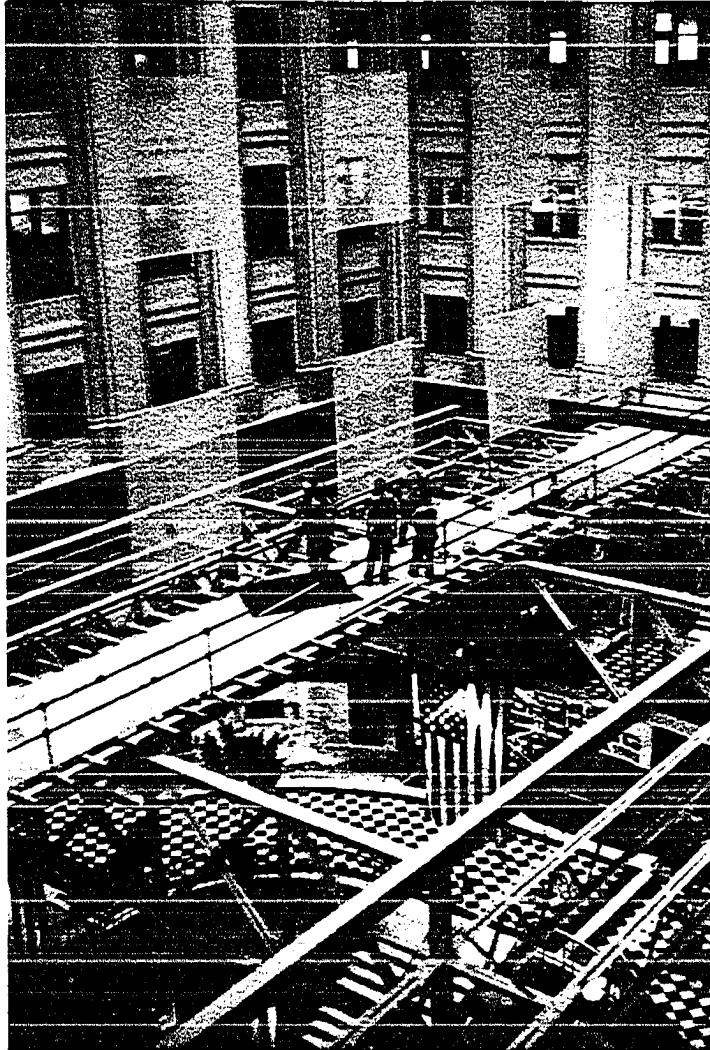


Figure 13. Robert Irwin, "48 Shadow Planes" installation, Washington, D.C., 1983.
(Courtesy Jack Brogan.)

CHAPTER 5

TECHNIQUE

Workmanship

What prompts artists to work with fabricators is generally the desire to use materials for which they lack expertise, or methods for which they lack machinery. If the necessity is for a produced object with specific visual requirements, not a found object intended for another purpose, artists are not often thinking in terms of common types or levels of production. For Lynda Benglis, Robert Irwin, and John McCracken, the choice of Jack Brogan as a fabricator was based on their need for someone who could provide production options beyond commercial standards for the specific materials. What that entailed was not more and better machinery, but more and better labor.

Brogan's work has been described as "craftsmanship" as well as "fabrication," but neither term reflects what he does in a way that is useful, as their definitions historically have been dependant on notions of hand- versus machine-made, or traditional versus high technology. While Brogan asserts that all the work that comes out of his shop is "hand-made," he utilizes tools powered by electricity. Additionally, he works with polyester and sheet metal as well as with wood and bronze. Clearly, Brogan's working methods require a form of classification that addresses the activity rather than the implement or material.

In The Nature and Art of Workmanship, David Pye develops a classification of workmanship based on risk or certainty, the two being distinguished by the amount of control exercised by the maker. Pye's definitions are as follows:

In the workmanship of certainty the result of every operation during production has been predetermined and is outside the control of the operative.

In the workmanship of risk the result of every operation during production is determined by the workman as he works and its outcome depends wholly or largely on his care, judgement and dexterity.⁷⁸

Pye focuses on the worker's actions rather than the tool, suggesting that "A workman using the workmanship of risk assisted by no matter what machine-tools and jigs, can [spoil the job] at almost any minute."⁷⁹ For Pye, the worker's relationship to a machine is a question of practicality and suitability, which is determined by the design of the product--its salient features, whether it is a unique object, its use, its cost.⁸⁰

Within the confines of his shop, Brogan does not venture beyond devices such as table saws, lathes, grinding wheels, clamps, and casting forms, and he has developed hand-powered polishing tools and an oven for manipulating a cast polyester sculpture. The most advanced technology is found in the metal spray machine, which was developed by 1895 for use on railroads, and the oxyacetaline welding torch, which came into wide use in the late 1920's. Despite the abundance of electric and gas-powered tools, at least fifty percent of the work is done with brushes, hammers, rags, and files, and all of it is guided by the judgement and dexterity of the worker.

⁷⁸Pye, The Nature and Art of Workmanship, 24. It should be noted that Pye's purpose is not to levy a moral judgement concerning either mode of working; rather, he presents a means of identification and a method for determining quality in workmanship.

⁷⁹Pye, The Nature and Art of Workmanship, 6.

⁸⁰For example, ten-million identical plastic cups meant to be sold inexpensively would be more efficiently produced by an injection-molder in which a worker has virtually no contact with the cups as they are being made.

But the workmanship of certainty is also incorporated into projects generated by Brogan's shop, as with the plasma cutter used for Robert Irwin's "Fillegreed Line," or the metal patterns used for cutting John McCracken's stainless steel sculpture. However, Brogan produced the drawing that directed the plasma cutter, and the templates used by the person who cut the stainless steel. While it appears that a hybrid system of workmanship is in operation, the range of qualities which Brogan can impart on a project places his output--from tooling, to production, to installation--more convincingly within the workmanship of risk.⁸¹ The result of functioning by the workmanship of risk is that projects are materialized according to the capabilities of a worker rather than those of a machine. At its best, what this situation allows for is a diversity of output that reflects the knowledge and intentions of the worker as well as those of the artist.

The workmanship of risk does not, in itself, imply excellence in production; it primarily allows for the worker to be more mentally and physically engaged with his or her work.⁸² It takes a conscious effort on the part of the worker to aim for precision in the finished product. When discussing an acrylic prism he produced for Robert Irwin, Brogan speaks of the object as reflecting his decisions as well as those of the artist:

I contracted to take [the prism] for a certain amount [of money], but then I ran into problems which weren't my fault. One piece of acrylic wasn't cast properly, but if I had gone ahead and just put it together and left the flaw in there, it wouldn't have been a good piece. Yet, I would have completed the prism to my contract. But I wouldn't do that.⁸³

John McCracken also discussed the fact that Brogan's shop operates by higher standards of workmanship, an aspect corroborated by Brogan's assistant, Alberto Tovar. Tovar

⁸¹Pye, The Nature and Art of Workmanship, 6-7.

⁸²Pye, The Nature and Art of Workmanship, 15.

⁸³Honda, "Interview: Jack Brogan," 30.

remarked, "My previous jobs were different because they allowed for deviation. This job requires more attention to quality at all levels. There is no room for mistakes."⁸⁴ Brogan employs exacting standards by choice; also by choice, he uses the workmanship of risk to support those standards.

Found Technology

The work that comes out of Brogan's shop is produced, in Robert Irwin's words, by a "very backyard" level of technology in which the ingenuity of the fabricator is likely to fill in where there is no tool or no established method.⁸⁵ Brogan relies on make-shift systems of production and tooling, and innovation in the means is arrived at through an empirically derived set of references, or "real if untheoretical knowledge."⁸⁶ The approach that Irwin describes as "backyard" and Brogan refers to as "custom" can also be identified as "vernacular" when placed in the wider context of national production.

In his 1948 book, Made in America: The Arts in Modern Civilization, John Kouwenhoven documents a tradition of improvisation and empiricism as forming the earliest pattern in the American industrial system:

It was this tradition in which were developed and kept universally available certain elements of design and certain principles of structure which were a direct, uninhibited response to the new environment and which finally had decisive influence in the hands of men of skill and vision. This stream of art often failed to create beauty of its own. But its patterns at least reflected actuality, however ugly that actuality often was; and the forms evolved in it were firmly rooted in contemporary experience.⁸⁷

⁸⁴McCracken, interview with the author, 2 February 1989; Tovar, interview with the author, 26 January 1989.

⁸⁵Irwin, interview with the author, 1 February 1989.

⁸⁶Cyril Stanley Smith, "Matter versus Materials: A Historical View," Science 162 (November 1968): 638.

⁸⁷Kouwenhoven, Made in America, 52.

Kouwenhoven cites a 1872 treatise on woodworking machinery by John Richards who, in turn, noted how carpenters, cabinetmakers and shipbuilders made tools for their own use by employing "no constraints, or rules for proportions, like an engineer or machinist, but blindly supplied a shaft here, a pully there."⁸⁸

On the scale of a system of production, methods rather than individual components are substituted, borrowed, and improvised according to the needs of the producer. The principle was always to get the implement or technique to work by whatever means, and any lack of theorems was compensated for by the "intelligence, ability, and self-reliance" of mechanics.⁸⁹ The vernacular was and is about the application of knowledge without regard to limitations imposed by a discipline.

Almost 100 years after John Richards published his treatise on woodworking machinery, the vernacular was very much in evidence in critical writings about art. In 1967, the critic John Coplans wrote that "younger artists will not only employ any means they consider necessary to do what is required, but they are obviously not bound by a specific technique . . . They use whatever aspect of technology is required, according to need, and without inhibition."⁹⁰ In 1967, John McCracken spoke of technique as "mainly a matter of using whatever means that are practical and appropriate towards

⁸⁸John Richards, quoted in Kouwenhoven, *Made in America*, 26. On page 28, Kouwenhoven also notes: "W. F. Durfee, one of the judges at the Centennial, commended the metal working machines made by Pratt and Whitney of Hartford, Connecticut for 'the admirable character of their general design, which shows the result of careful study and large experience . . . with the view of eliminating unnecessary details, thus at once cheapening their construction and improving their qualities as working machines.'" Although the metal working machines were made for mass production, their design spoke to the vernacular tradition.

⁸⁹Ferguson, "On the Origin and Development of American Mechanical Know-How," 15. Ferguson also comments on the British engineer Joseph Whitworth who visited the United States in 1853, noting that "the thing that had impressed him was the ready acceptance of labor-saving tools by the workmen as well as the proprietors."

⁹⁰Coplans, "The New Sculpture and Technology," 22.

getting the job done."⁹¹ And the catalog essay for the 1969 exhibition 14 Sculptors: The Industrial Edge, recognized "an industrial vernacular in new American sculpture" and that "new materials and fabricating processes are now so intrinsic to American sculpture that they have helped form a new aesthetic."⁹² Essentially, the "new aesthetic" was based on an older method of production for which the model lay outside the discipline of art. Especially in Los Angeles, the "laborious and painstaking" efforts of artists were considered "analogous to the fanaticism of makers of custom-built racing cars or to the rituals that surfers and motorcyclists go through with their equipment."⁹³

Brogan was not responding to art ideas when he opened Design Concepts in 1965, but the fact that his approach mirrored and, thus, accommodated that of many prospective clients helps to explain why the business changed focus and thrived. The vernacular is operable whenever there is a need for things to be produced, for economic or structural reasons, according to improvised rules. Artists and commercial clients work with Brogan if there is no choice but to have a piece developed by make-shift systems of production.

One of Robert Irwin's earliest projects with Brogan demonstrated the individualized manner in which tools and materials had to be developed to address the requirements of the art. Since there is not a widespread need for acrylic to be cast in thirty-foot sections or polished to optical clarity, as Irwin requested, no machines or tools are available for those purposes. In order to produce a product that is highly controlled in its appearance, the method is often the antithesis of the end product--quite

⁹¹McCracken, quoted in Barbara Rose, A New Aesthetic, 57.

⁹²"The Industrial Edge," in 14 Sculptors: The Industrial Edge, 43.

⁹³Rose, "Los Angeles: The Second City," 111.

clumsy and messy. To produce Irwin's column, Brogan had to join three ten-foot sections of cast acrylic, a process for which he had to develop a hydraulic clamping system that provided 35,000 pounds of pressure per square inch. Based on Irwin's research, the two utilized the original premise of bonding plastics, in which the surfaces of two sections are released and then fused together. After standing the ends of the acrylic in solvent, the workers had twenty-five seconds to get the pieces from the solvent pan to a clamped position before the surfaces began to harden.⁹⁴ To facilitate that process, Brogan incorporated a table into the clamping system. Polishing the surface required the development of hand-powered tools (fig. 14), and when Brogan needed finer polishing compounds than were available, he re-sifted the various oxides he was experimenting with. The entire process required, at various stages, applying knowledge gained from experience with plastics and solvents, and in laminating and polishing other materials.

Like the nineteenth-century producers of woodworking machinery studied by John Richards, Brogan utilizes "found" technology in which techniques are reconfigured to meet the needs of a different context. Brogan has generally developed new uses for familiar techniques, as he did with the sculptures of John McCracken, and those of Lynda Benglis, as will be discussed. And even though Irwin's acrylic prisms presented unfamiliar technology as well as materials, from his experience as a cabinetmaker Brogan did have a point of reference with regard to the functions of clamping and finishing.⁹⁵

⁹⁴Irwin, interview with the author, 1 February 1989; Brogan, interview with the author, 2 February 1989.

⁹⁵As a former cabinetmaker, Brogan is cognizant of a woodworker's skills; in his current practice, he has exploited those skills related to finishing and joining. Since 1965, Brogan has employed nearly 100 people, the vast majority of whom have been cabinetmakers. Brogan worked as a cabinetmaker prior to opening his business, and has since maintained a network of former associates who refer potential employees to him.

Subcontracted projects also require that skills be adapted, as in the case of Irwin's "48 Shadow Planes," for which an electrician designed and fabricated the wire scaffolding.

The innovation is less in the product than in the design of systems of production and tooling. What is subsumed into the art is not necessarily a new way of doing things, but rather, a novel one. For Brogan, and ultimately for his clients, the concept of the vernacular--of using whatever is necessary--means utilizing existing abilities to achieve unfamiliar results.

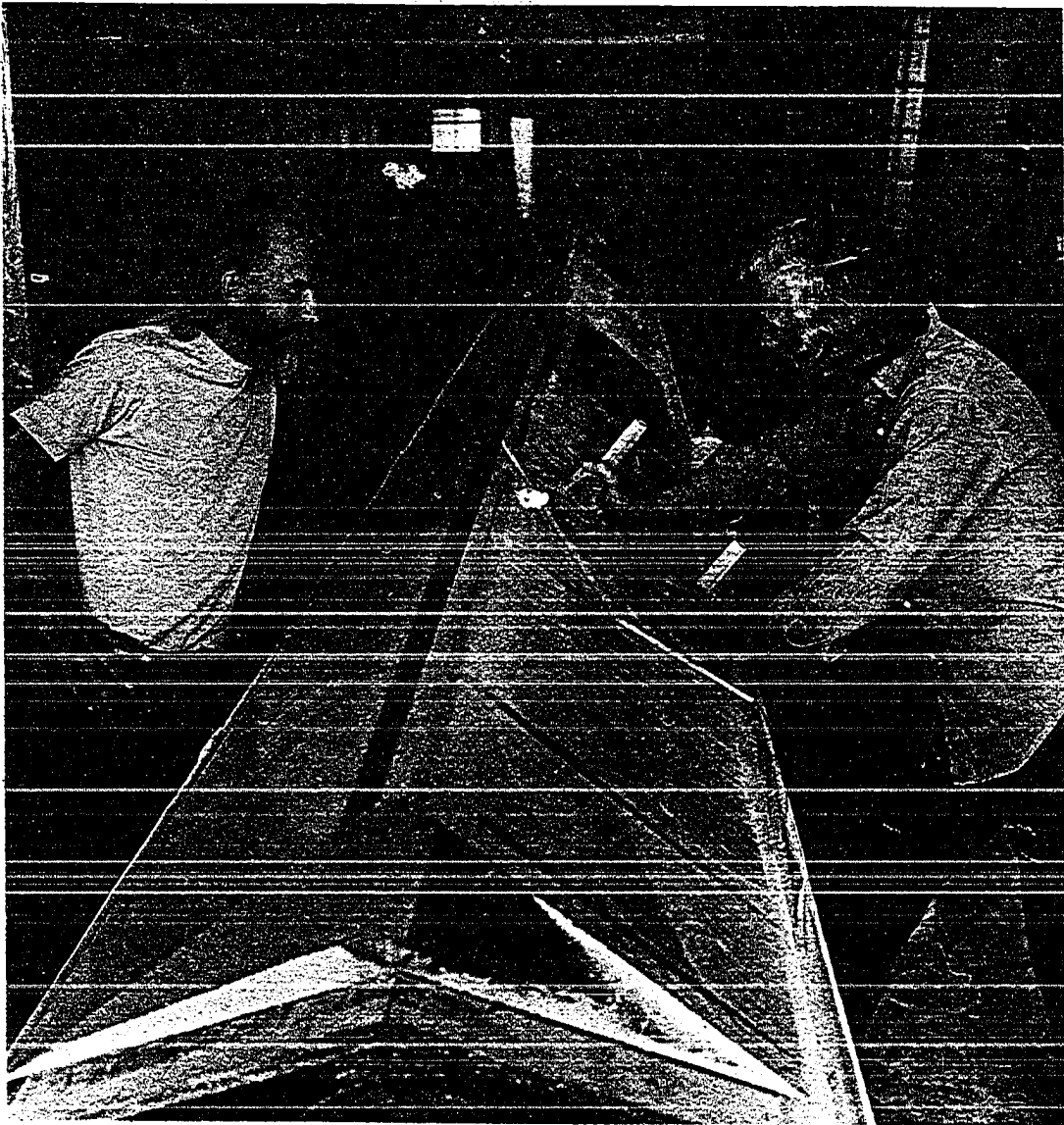


Figure 14. Robert Irwin watching Jack Brogan finish the surface of an acrylic column with a hand-powered polishing tool, 1971. (Courtesy Jack Brogan.)

CHAPTER 6

CASE STUDY: LYNDA BENGLIS

Brogan prefers that each project with which he is working require a different technique, and he has turned down requests from artists because he felt their concerns were similar to those of a current client. Because he was working with Robert Therrien, Brogan decided not to assist Mark Lere in the production of his sculptures, which had parallels with Therrien's in terms of materials and format.⁹⁶ The significance of Brogan's policy lies in his understanding that the decisions he can and oftentimes must make affect the development of an artist's work. His decisions, however technical in nature, can have a minor-to-drastic impact on the visual qualities of the art.

Although Lynda Benglis has said that Brogan "never changes anything; he understands the concept and is able to offer suggestions," some major structural changes in her work have been made at the impetus of the fabricator.⁹⁷ When Benglis first approached Brogan in 1973, she was interested in spraying metal onto her sculptures to make them look as though they had been cast.⁹⁸ Benglis's first "sparkle knot" sculptures consisted of an armature of wire screen and cloth, covered in a layer of plaster and a coating of sculptmetal, over which Brogan sprayed a metal deposit (fig. 15). Because

⁹⁶Brogan, telephone interview with the author, 3 April 1989. Brogan also turns down jobs because he lacks the time and space.

⁹⁷Benglis, interview with the author, 26 January 1989.

⁹⁸For a comprehensive analysis of Benglis's work since 1970, see Susan Krane, "Lynda Benglis: Theatres of Nature," in *Lynda Benglis: Dual Natures* (Atlanta: High Museum of Art, 1990): 21-62.

sculptmetal produces toxic fumes when it is heated during the metalizing stage, Brogan, for health reasons, instigated a change in the work by requesting that the sculptmetal be eliminated. It was also at Brogan's suggestion that the layer of cloth and plaster was eliminated, primarily to make his work go more quickly.

As the structure of Benglis's work became less substantial, the surface itself began to account for more of the object. The "knots" presently consist of wire mesh and up to one hundred and eighty pounds of sprayed metal which is then ground and polished (fig. 16, 17). Currently, Benglis deals primarily with the understructure of the object--forming the screen knots, annotating photographs of works-in-progress with instructions--and relies on Brogan and his assistants to apply the specified surface. Thus, Brogan's role has evolved to the point where he now shoulders the greater responsibility for what the viewer actually sees.

In responding to an artist's technical demands, Brogan also addresses his interest in expanding his own abilities. He had purchased a metalizer in 1967 and, at the time Benglis began working with him in 1973, was using it to spray different types of plastic for commercial display jobs. At the time, he had already developed a ceramic coating for the plastic to prevent it from igniting when it was sprayed with the molten metal. Benglis' fabric, plaster, and sculptmetal sculptures were, according to Brogan, "a natural thing to do at the time because I was looking for different uses for the machine."⁹⁹ Brogan and Benglis initially experimented with spraying metal on strips of canvas. The first attempt at producing a finished work involved two pieces, "Lambda" and "Kappa," that had previously been exhibited at the Whitney Museum of American Art and the Portland Art Center. The success of "Lambda" led to further experimentations with

⁹⁹Brogan, interview with the author, 26 January 1989.

Benglis's older pieces and, eventually, to experimentations with combinations of metals.¹⁰⁰

In Brogan's work with "Lambda" and "Kappa," there is a sense of reworking and layering the fabricator's ideas and developments with those of the artist. The working relationship between Benglis and Brogan is one predicated on trust in the decisions that either one will make throughout the course of a project, and both use one another's interests as points of departure for their own concerns. Benglis has suggested that Brogan's interest in the visual aspect of his output, as well as his working situation, is the reason she has maintained a long-standing working relationship with him. She notes:

Jack doesn't just deal with the materials, he deals with the aesthetics, and that's much more important than just having a fabricator. He's as involved with the piece as the artist is, in terms of the actual aesthetics. The reason I like to work with Jack is that it's a closer kind of understanding, but that's also because he doesn't have twenty-five artists around. It's more interesting to work with someone under these conditions.¹⁰¹

Brogan is acutely aware of the level of input he has in a project, noting that, "Some people can't accept the fact that I'm actually involved with their work. But then, we don't work together very long."¹⁰² An artist necessarily gives up some control over a project,

¹⁰⁰Benglis has noted that "you can effect changes [in the work] faster if you work with different people." In producing the metallized knots, Benglis has worked with other fabricators concurrently with Brogan, most notably General Plasma, an aircraft company in Culver City, California and Tallix, Incorporated of Beacon, New York. However, since Brogan was the first fabricator Benglis worked with, she was able to approach the others with prior knowledge of the methods and ways of experimenting that Brogan was willing to work out. Benglis, interview with the author, 26 January 1989.

¹⁰¹Honda, "Interview: Jack Brogan," 29. Except for the brief period from 1974 to 1978 when she lived in Venice, California, Benglis has traveled from her home in New York to Brogan's San Pedro shop to develop new work.

¹⁰²Brogan, quoted in Honda, "Interview: Jack Brogan," 30.

not because Brogan usurps responsibility, but because he establishes what does not exist for the artist, namely, order over production methods.

Brogan has discussed his contribution to an artist's work as "realizing the full potential of a material or technique, a potential that an artist may not know exists."¹⁰³ When Benglis first approached Brogan, she knew about the process of metalizing but had not yet applied the technique to her work. Because Benglis' sculptures presented material problems different from what Brogan had dealt with, neither fabricator nor artist was fully cognizant of the technique's possibilities. Once those possibilities were developed, Benglis had a wider range of visual effects with which to work. In the case of John McCracken, the metal shop that initially tried to produce his stainless steel sculptures did not operate within a technical capacity suitable for the work. McCracken noted that "It was [Jack's] initiative to improve some pieces; others, I would feel were not quite what they could have been."¹⁰⁴ By exploring possibilities that were not readily available, Brogan was able to offer McCracken a set of options more amenable to his work.

By determining what is technically feasible, a fabricator determines the boundaries within which an artist can make aesthetic decisions. In the case of Brogan, who is often asked to develop non-standard options, the technical decisions are essentially aesthetic ones, as well. In determining what the "potential" is--how smooth it can be, what materials it will adhere to, what it can be combined with--Brogan is making a decision about what the parameters look like, and in effect, what the visual qualities of an artist's work can be.

¹⁰³Brogan, interview with the author, 30 December 1988. Donald Lippincott voiced a similar idea when he said, "Making an artist aware of things that you think are important is part of what we do." Lippincott, interview with the author, 1 March 1989.

¹⁰⁴McCracken, telephone interview with the author, 10 April 1989.



Figure 15. Lynda Benglis, early metalized knot with screen, cloth, and plaster understructure, circa 1973. (Courtesy Jack Brogan.)



Figure 16. Lynda Benglis, wire mesh understructure, 1989. (Photo: Brent Riggs.)

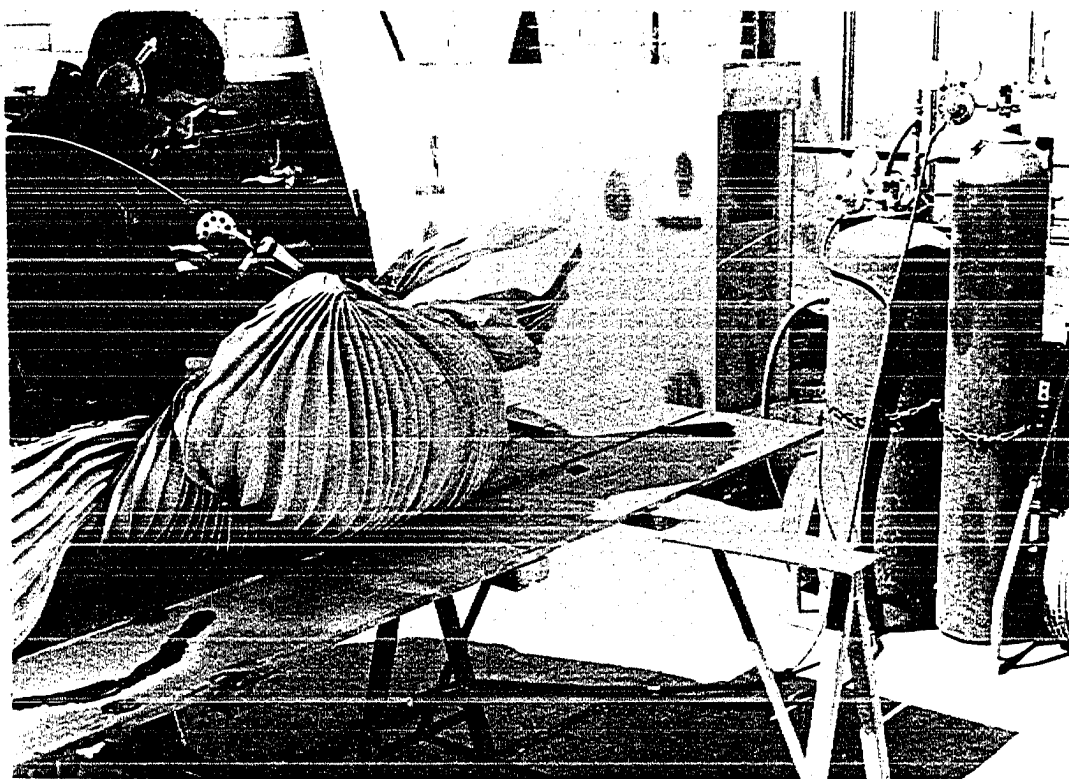


Figure 17. Orlando Valle metalizing a Lynda Benglis knot, 1989. (Photo: Brent Riggs.)

CHAPTER 7

THE TECHNICAL ARTIST

Brogan demonstrates a level of commitment in terms of time and energy that is indicative of something more than an artist's best interests. He emphasizes that his interests must be addressed in a project as well, stating that "I've directed my things through other people. I use an artist's idea as a vehicle to test my techniques."¹⁰⁵ On occasion, Brogan has broken off working agreements with clients whose sensibilities do not match his own.¹⁰⁶ In discussing the nature of his business, Brogan said, "What people don't realize is that my work is about perfecting techniques and making my job easier and less time-consuming." And Robert Irwin has suggested, "The special nature of [Brogan's] work is that he is continually looking at new materials and new processes," often in the absence of a specific project.¹⁰⁷ Producing things is a means to pursue his own agenda, so artists contribute as much to Brogan's work as he does to theirs.

In defining the nature and scope of his contribution to an artist's work, Brogan refers to himself as a "technical artist," a term he has used since the mid-1970's. The term is meant to convey not only the broad-based nature of Brogan's expertise, but

¹⁰⁵Brogan, interview with the author, 19 January 1989.

¹⁰⁶It took five stages to develop a painting material for a client, and the artist, for whom Brogan requested anonymity, wanted to use each stage of the material in five separate bodies of work. Because Brogan understood the material to exist only in its final stage, he would not use it in any other form. Brogan, interview with the author, 6 January 1989.

¹⁰⁷Brogan, telephone interview with the author, 17 October 1988; Irwin, interview with the author, 1 February 1989.

also the level of independent thinking he expects to exercise in any project. Implicit in Brogan's development of a specific term for himself is an understanding of his position as more than a link between an idea and its material manifestation. As Brogan has said, "I think it's important how I work with the artists and what my input is in the work. I don't want to be categorized as a regular fabricator because I think I work with different materials, and a different sensibility and knowledge of the techniques."¹⁰⁸ When Lynda Benglis remarked, "The reason I like to work with Jack is that it's a closer kind of understanding," she addressed the idea that Brogan's way of thinking, not just his aptitude with materials, is of greatest value to an artist.¹⁰⁹

The motivation behind Design Concepts is to offer a mode of thinking that can be applied to diverse situations rather than a specific, easily classified service such as mold-making. Accepting commercial commissions that required a wide range of techniques initially allowed Brogan to exercise his capacity for solving material problems, but the introduction of art into the business proved even more fortuitous. As Brogan has noted, "It's difficult to find something that's like working for artists, where every job is a little different."¹¹⁰ Yet, even before he began interacting with artists, Brogan understood problem-solving as he practiced it--not strictly within the fields of art, science,

¹⁰⁸Brogan, telephone interview with the author, 17 October 1988.

¹⁰⁹This point has been corroborated by gallery and museum personnel as well. Gallery owner Daniel Weinberg commented: "[Brogan] works differently than other restorers. He doesn't just work by rote; he really thinks through problems." Weinberg, telephone interview with the author, 8 February 1989. Ann Bennett, Registrar of the Armand Hammer Museum, Los Angeles, noted that in reinstalling the lights in the temporary offices of the museum, "Jack was more the idea person. Mentally, he sees what he has to do and he works very quickly on solutions." Ann Bennett, interview with the author, 19 January 1989.

¹¹⁰Brogan, interview with author, 19 January 1989.

engineering, or manufacturing but touching on aspects of all--to be something that eluded conventional terminology.¹¹¹

During the 1960's, when Brogan began working as a technical artist, a model for his type of activity was being discussed by Cyril Stanley Smith, a metallurgist and historian of science and technology. Smith saw the intellectualized, "atomistic" practice of science as a limited, dehumanized way of understanding the world and advocated the inclusion of a more sensory-based approach to provide a balance.¹¹² In an article published in 1968, Smith recognized in materials engineering not only "a new and broader kind of science" but also "an attitude of mind, a method and a framework of knowledge applicable to many areas." He described the materials engineer as

likely to be interested in ceramics and synthetic organic polymers as he is in metals. His job is to find, to invent, and (or) to produce materials having the particular combination of properties (mechanical, magnetic, optical, electrical, and others, including economic) that is needed for a given service.¹¹³

To that end, the materials engineer displays what appears to be a hybridization of abilities based on, and allowing for, movement between specializations. For his clients, Brogan functions as a metal worker, a foundryman, a plastics manufacturer, or a building

¹¹¹Concern over the inadequacy of titles was also expressed during the 1960's and 1970's by historians of technology. Otto Mayr noted, "Nowadays, practitioners seem to be more clearly identified by an advanced degree or by a job title, but if we look at their actual work, the labels again turn out to be arbitrary." Otto Mayr, "The Science-Technology Relationship as a Historiographic Problem," Technology and Culture 17 (October 1976): 667.

¹¹²Cyril Stanley Smith, "Materials and the Development of Civilization and Science," Science 148 (14 May 1965): 908-917. Smith was not alone in his assessment of the state of science. For a contemporaneous critique of the United States government's pattern of funding in the technological arena, see Wesley Marx, "One-Eyed Technology," in The California Revolution, ed. Carey McWilliams (New York: Grossman Publishers, 1968), 36-47.

¹¹³Smith, "Matter versus Materials: A Historical View," 643.

contractor. In effect, a singular approach to acquiring and utilizing knowledge is what permits Brogan the flexibility of his output.

For the technologist, knowledge is acquired through a system of thought independent from that of science, one that is, in the words of historian Edwin T. Layton, Jr., "plastic, geometrical, and to some extent non-verbal."¹¹⁴ Brogan's training was his work experience, and little of what he does was learned through formal education or codified sources.¹¹⁵ He has developed a vast store of knowledge about materials and processes that is almost entirely tactile in nature, and the information he conveys to a client concerns the physicality of things and how they perform in an actual, not just a theoretical, sense. Robert Irwin has noted that "[Jack] is very tactile and that's why he can work with artists so well. He really gives you a kind of flexibility. It's about the feel and look of material; he has 'real' opinions about everything."¹¹⁶

The ineffectiveness of even verbal communication concerning Brogan's workmanship was demonstrated when "Tetra," a 1988-89 Lynda Benglis piece, needed to be repaired. The sculpture, constructed of gold-plated bronze over bronze mesh, was damaged in shipping. The piece was sent by the Texas Gallery, where it was to be exhibited, to a welder and a plater in New Orleans and then was returned to the Paula Cooper Gallery in New York. Dissatisfied with the piece, the Paula Cooper Gallery sent

¹¹⁴Edwin T. Layton, Jr., "Technology as Knowledge," *Technology and Culture* 15 (January 1974): 36. See Otto Mayr, "The Science-Technology Relationship as a Historiographic Problem," for an account of the development of separate models for "science" and "technology."

¹¹⁵Brogan attempted a tool and die-making course and a mechanical engineering course while he worked at the General Motors automotive plant in Detroit. He did not complete either course, although he now wishes he had finished the engineering course "to get exposure to more methods and techniques." Brogan, interview with the author, 19 January 1989.

¹¹⁶Irwin, interview with the author, 1 February 1989. Mathieu Gregoire also suggests that Brogan "does have an amazing sense of materials. He knows by experience, not by books." Gregoire, telephone interview with the author, 8 February 1989.

the piece back to Brogan, who had to undo the existing restoration in order to repair the initial damage.¹¹⁷ Because restoring the piece required knowledge of how the different metals were applied--at what temperature they were sprayed on and the thickness of each layer, and also the manner in which the metals interact when heated--a conservator would have to be privy to Brogan's methods either through experience or research. Brogan is not necessarily the only person who can repair Benglis's more complex pieces, but as he noted, "It's not about me telling someone how to fix [the work], it's about the skill and you can't tell someone that over the phone."¹¹⁸

As Cyril Smith points out, the technologist's empirical approach relies on immediate involvement not only with the properties of materials, but also the context in which they are required to function.¹¹⁹ Brogan's set of references is oriented more by concept than by strict associations of materials with techniques, and he often applies techniques from one situation to another situation of like circumstances. For John McCracken's stainless steel sculptures, he utilized a polishing technique that was developed for Robert Irwin's acrylic columns. Although the materials were different, Brogan identified a commonality between the two projects that answered to the same method. And even as Lynda Benglis' metalized knots were changing in their understructure, Brogan was attempting to make them convey the same information despite differences in their construction.¹²⁰ That idea was derived from his work with

¹¹⁷Jack Brogan, Lynda Benglis file, 1989.

¹¹⁸Brogan, telephone interview with the author, 19 April 1991.

¹¹⁹See Cyril Stanley Smith, "Art, Technology, and Science: Notes on Their Historical Interaction," *Technology and Culture* 11 (October 1970): 493-549.

¹²⁰Of Benglis' sculptures, Brogan has said, "The information you get from the work is the same, but the materials and techniques change [over time]." Brogan, telephone interview with the author, 17 October 1988.

prototypes, in which he had to change the visual information that was provided by a specific material. In making wood look like plastic or plastic look like metal, Brogan was altering the surface quality of one material to the point where it could be "read" as the surface quality of another.

In effect, Brogan cross-references contexts in much the same way as an artist, and Robert Irwin has noted, "The way Jack works is like an artist; he processes information the same way. His is a tactile, hands-on knowledge."¹²¹ The perceived confluence between Brogan's way of thinking and that of artists is something that initially took place beyond the confines of his business. During the 1960's and into the 1970's, when much art was moving out of the studio, or at least beyond conventional studio practices, artists were also thinking about the interface between art, science, and technology, as was Cyril Smith.¹²² In the 1967 catalog for A New Aesthetic, John McCracken expressed his belief that "artists operate on the periphery of science, technology and industry" and that "there should be some way of getting more of an interactive process going between artists and these other parts of society."¹²³ Additionally, at the height of the Vietnam war, the issue was one of perception, and the most prevalent idea was that the recognition of common modes of thought could provide

¹²¹Irwin, interview with the author, 1 February 1989. For further discussion of "artistic" thinking by non-artists, see Eugene Ferguson, "Elegant Inventions: The Artistic Component of Technology," Technology and Culture 19 (July 1978): 450-460. Ferguson discusses aesthetic decisions, rather than function, as being the reason why objects such as motorcycles look the way they do.

¹²²See also, Jack Burnham, Beyond Modern Sculpture: The Effects of Science and Technology on the Sculpture of this Century (New York: George Braziller, 1968); Maurice Tuchman, Art and Technology: A Report on the Art and Technology Program of the Los Angeles County Museum of Art, 1967-1971 (New York: The Viking Press, Inc., 1971); Jonathan Benthall, Science and Technology in Art Today (New York: Praeger Pub., 1972).

¹²³McCracken, quoted in Barbara Rose, A New Aesthetic, (Washington, D.C.: Washington Gallery of Modern Art, 1967), 57.

a way of sharing knowledge for peaceful means. Far from being idiosyncratic, Brogan's concept of himself as a technical artist was well-placed within the context of the period.

There is nothing in Brogan's history to suggest any failed attempt at being an artist, nor does he currently express aspirations to make art on his own.¹²⁴ What his personal history and the history of his business do suggest is a dissatisfaction with production situations motivated by short-term profits. In the way he organized the financial and operational basis of Design Concepts, Brogan was acting out of a need to support how he thinks and the type of knowledge he has to work with.

¹²⁴Brogan's interests outside his business also tend toward the mechanical and the material. He collects antique watches in non-working order and restores them to working condition. Additionally, he has restored several boats that required extensive woodworking.

CONCLUSION: THE CRITERIA FOR WORKING

In reference to not receiving collaborative credit for his work, as printmakers and foundries do, Brogan has said, "From the business standpoint, it would have helped to promote myself, but I never cared about getting involved in that way . . . if you do, you could spend a lot of your time doing boring things."¹²⁵ While Brogan does not reject any offers of public recognition for his work, his lack of obvious self-promotion can lead to perceptions that diminish the importance of his contributions to his field. The fact that he has rarely advertised, that his presence is known almost exclusively through word-of-mouth, and that he can be found only through people who have worked with him, keeps Brogan, like his financial arrangements with clients and the structure of labor and space in his shop, on the fringes of standard business practice. In fact, the structure of his business reflects the very nature of the work he does, in which problems are solved by circuitous means. Moreover, the fact that he is situated to do technically challenging projects, often at a financial loss, makes him seem like something of a folk hero for artists. But Brogan has elected to do that kind of work, just as other fabricators have elected not to. The element of choice means that Brogan is not available for everyone; he decides what is interesting for his purposes as he has neither the time nor the scale to his operation to work on every proposal he receives. Whatever Brogan has done to shape his business has all been in the service of supporting his work creatively and financially.

¹²⁵Brogan, quoted in Honda, "Interview: Jack Brogan," 30.

If Brogan's "ability to take concept into reality often borders on the miraculous," it is that way for a reason.¹²⁶ Just as John McCracken, Robert Irwin, and Lynda Benglis did not arrive at their mature work without years of developing their ideas, neither was Brogan accidentally successful at fabricating art. His methods allow for a cogent physical representation of a client's ideas due to biographic and economic conditions that were in place prior to his working with artists. The diversity of his work experience before his arrival in Los Angeles in 1958 fostered an interest in materials, and a lack of formalized training allowed him to develop an empirical understanding of methods. Design Concepts was meant to be a vehicle for Brogan's specific interests, and the economic situation of the Southern California region, with its emphasis on aerospace and defense industries established during World War II, initially facilitated his working situation. The disparity among individual projects, and, on a larger level, the change in clientele, has been possible through an adaptation and re-working of principles of production.

As a producer, Brogan values his methods for reasons that are supported, but not necessarily driven by, the artist. While his efforts are in support of a client's needs, they are also, in the amount of time and labor expended on research, a productive undertaking independent of the project at hand. An object comes out of his shop looking the way it does not only because an artist requests certain elements, but because Brogan made the decision to define new technical and, hence, aesthetic parameters, and is clear about what he hopes to accomplish in terms of the workmanship.

The presence of artists did not determine the way Brogan works, nor has Brogan drastically altered his clients' conceptual concerns. As well, the working

¹²⁶Tony DeLap, quoted in *Jack Brogan: Projects*, 15.

relationship is more involved than simply employing a person's services, or producing someone else's art. The result of a collaboration between artist and technical artist is that new areas of inquiry are established for both based on extant concerns.

When Daniel Weinberg described Brogan as "a dying breed," he implied that the possibility of obsolescence stems not from lack of demand for services, but, as David Pye suggests, "from want of theory."¹²⁷ Understanding why Brogan employs specific methods is as vital to the perpetuation of his activity as naming and cataloging those methods. The theory does exist, specifically in Brogan's criteria for working. He is, in fact, a consumer of his own product, if only because that "product" is a way of thinking. The organization of Brogan's business supports an intellectual activity in which problems are solved through the use of found technology. An extension of the vernacular tradition of nineteenth-century American industry, the format of found technology accepts knowledge as an individual permutation in which available human and material resources answer to immediate needs. By incorporating methods from outside the medium in question, Brogan, and by extension the art he produces, is very much a part of this tradition. In the late-twentieth century, found technology is most frequently seen in venues, such as art, for which functional and/or philosophic needs must be met with non-standard methods of production.

Analyzing Brogan's way of thinking and working provides a means of understanding what values, specifically those of ingenuity, pragmatism, and collective effort, are subsumed into the material landscape of the mid- to late-twentieth century. What is in danger of becoming obsolete is the ability to address those values to the degree and in the manner that Brogan has. His capabilities are the culmination of nearly fifty

¹²⁷Weinberg, telephone interview with the author, 8 February 1989; Pye, The Nature and Art of Workmanship, 7.

years of developing tactile and empirical knowledge in an economic and intellectual atmosphere conducive to that mode of thinking. Any shift away from the situation that perceives Brogan's approach as necessary and meaningful will be seen in the material landscape of the next century.

CHRONOLOGY

1930 Born in Columbus, Ohio to Horace Brogan, a civil engineer, and Beatrice Brogan. After his parents separate, Jack moves with his mother to Knoxville, Tennessee, where he is raised by his grandparents. His grandfather works as a foreman on the railroads.

1942-1945 Does carpentry work for thirty-five cents an hour for Ross Wallace, an architect from Holland.

1948 Goes to Michigan where he builds engines for Chrysler Motors and automobile bodies for Briggs. Enrolls in the Tool and Die-Making Course at the General Motors School, but completes only six months of the four-year course.

1949 Moves back to Knoxville. Works hauling and selling produce at roadside stands. He eventually owns and operates a general store.

1950 -1953 Stationed in Korea during service in the United States Army.

1953 Returns to Knoxville. Works as a truck driver and a courier. Works at the Oak Ridge Laboratory as a chemical analyst.

1955 Buys a concrete block business in Clinton, Tennessee. Due to a neck operation for an injury sustained in the army, Brogan sells the business in 1958.

1958 Drives to Arizona "for the weather," and also to help a friend open a concrete block business. Stays for two or three weeks and then moves to Los Angeles.

1958 Buys two buildings at the corner of Melrose Avenue and Gower Street in the Hollywood district. Opens Brogan and Brogan. Manufactures parlour games for a distribution company using silkscreening, wood-graining, and other techniques.

1960 After a fire destroys the equipment at the Melrose Avenue shop, Brogan works for six months in the model department at Packard Bell, a television manufacturing plant.

1960-1961 Works as a finisher for Master Cabinet in Los Angeles where he paints marbled and plaid finishes on furniture. Meets Robert Irwin when the artist has Master Cabinet build stretcher bars for his dot paintings.

1961-1962 Opens Design Fabrications on Pico Boulevard in West Los Angeles with a co-worker from Master Cabinet. The company builds furniture to specifications for architects and designers. After Brogan's partner moves out of the area, the business closes.

1962-1965 Does freelance work, using his garage as a studio. Sets up display booths for conventions, produces metal logos and promotional products for businesses, produces and installs architectural elements for Boise-Cascade Corporation stores.

1965 Brogan opens Design Concepts in a leased space at 1905 Lincoln Boulevard, in Venice. The business focuses on fabrication of unique objects and spaces for architects, designers, and contractors. The space is less than one mile from the studios of Robert Irwin, Peter Alexander, and Ron Cooper, all of whom subsequently have work fabricated by Brogan.

1971 Works with Robert Irwin on production of a cardboard stage for a National Aeronautics and Space Administration symposium held in Irwin's studio. Subsequently develops techniques and equipment for use in the production of Frank Gehry's cardboard furniture.

1972 Design Concepts moves to a larger space at 13327 Beach Boulevard in Venice.

1974 Brogan receives first National Endowment for the Arts fellowship to teach a New Methods and Materials course at the University of California, Irvine. Advises faculty members Craig Kauffman and Robert Irwin, and graduate student Chris Burden.

1975 Design Concepts relocates to 2937 Pacific Avenue, San Pedro, California. At this time, Brogan works almost exclusively for artists, although he continues to do some projects for architects and the aerospace industry.

1979 Receives second National Endowment for the Arts fellowship to develop graphite epoxy techniques for use in a Robert Irwin piece.

1980 Brogan is the subject of a one-person exhibition, "Jack Brogan: Projects," held at the Baxter Gallery at the California Institute of Technology in Pasadena.

1981-1984 Operates a welding shop in Gardena, California in partial support of the art fabrication business.

1987 Design Concepts moves to a larger space at 431 West 10th Street in San Pedro.

1988 Brogan sells the building at 431 West 10th Street, but leases part of the space he previously occupied.

1991 Brogan continues to live and work in San Pedro.

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