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Publisher Routledge

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The Journal of Architecture

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title-content=t713703437>

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Online Publication Date: 01 December 2008

To cite this Article Sachs, Avigail(2008)'Marketing through research: William Caudill and Caudill, Rowlett, Scott (CRS)', The Journal of Architecture, 13:6, 737 — 752

To link to this Article: DOI: 10.1080/13602360802573884

URL: <http://dx.doi.org/10.1080/13602360802573884>

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Marketing through research: William Caudill and Caudill, Rowlett, Scott (CRS)

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The partners of Caudill Rowlett Scott (CRS), a post-Second World War architecture firm in Texas, USA, were especially innovative in their professional and business practices. One of their original contributions was the firm's marketing strategy, which was based on promoting not only design achievements but also the CRS 'research attitude' by publishing and distributing studies produced by members of the firm. This strategy, which built on a wide-spread American belief in the fundamental role of science and research in the nation's progress and development, was successful in the first two decades of the firm, but was dissolved in the 1970s with the firm's expansion and transformation into a profit-oriented enterprise. This paper describes the firm's research-based marketing strategy and argues that the success of the marketing strategy relied on the CRS partners' ability first, to integrate marketing into the firm's approach to architecture and design and into cultural norms of the time and secondly, to balance the expectations of both their potential clients and their professional peers. The CRS marketing strategy is an important case study for architects today as they respond creatively to similarly competing demands.

Introduction

William W. Caudill, one of the founding partners of the Texan architectural firm Caudill-Rowlett-Scott (CRS) (Fig. 1), was never shy about declaring the goals of the company: 'To produce good architecture, make some money, and to have some fun while doing it.'¹ Thus from the inception of the firm in 1946 the CRS team was actively and successfully engaged in promoting the firm; developing its marketing strategy together with its design approach. Although all of the CRS partners contributed to the firm's development it was Caudill who expressed his ideas most clearly and emphasised the integration of research into the firm's professional practices. Following Caudill's lead the CRS promotional activities highlighted not only the traditional accomplishments of an architectural

firm — designs, awards and service — but also what they called the CRS 'research attitude'.²

CRS used the term 'research' broadly and uncritically, almost as a catch-phrase for any exploratory thinking produced in the firm. 'Research' included, for example, a book by Caudill entitled *Toward Better School Design*³ and reports of experiments he conducted in the Architecture Division of the Texas Engineering Experiment Station (TEES) at the Texas A&M University (TAMU),⁴ which he helped to set up. Research also included surveys and studies prepared as part of the programming and designing of buildings.⁵ Based on these projects, members of the firm were authors of more than sixty written and illustrated reports, which were published in professional journals and magazines and in in-house report series. In the 1950s the CRS

Figure 1. The CRS partners in 1953 in front of a scheduling board; from left to right: William Caudill, John Rowlett, Wallie Scott and William Pena. (Photograph by Roland Chatham, Bryan, Texas.)



series was entitled *arch-arch: Research-Architecture Research Reports*.⁶ This material was actively circulated, free of charge, to clients, other architects and interested professionals in other fields. These publications were distinct from the firm's 'direct' promotional material, such as presentations and promotional brochures. Caudill and his partners, however, saw them as central to the indirect promotion of the firm (promotion 'which does not relate to any specific job', Fig. 2).⁷

Why such an elaborate strategy? The CRS marketing through research was in part a product of its time. In post-Second World War USA, scientific investigation was seen as crucial for further progress, a better societal order and security through technological superiority⁸ and both professionals and lay people were culturally predisposed to appreciate and even expect 'research' in professional practice. More specifically, 'scientists, as a result of their wartime accomplishments, enjoyed an unprecedented prestige'.⁹ Presenting the work of the firm as research,

and not only design, created a link between architects as professionals and scientists, a valuable connection in this economic climate.

'Research' also resolved a dilemma over public relations, which confounded many professional architects at the time.¹⁰ In the 1950s and 1960s the officers of the American Institute of Architects (AIA) still considered direct *paid* advertising as unprofessional behaviour and the 'Standards of Professional Practice' prohibited Institute members from actively promoting their firms in this way.¹¹ This policy curtailed architects' ability to associate their designs and finished buildings with the work in their firm, and they had to rely on the public making the connection. The AIA position was old fashioned and incongruous in the burgeoning 'consumer republic' (to borrow Lizabeth Cohen's term)¹² in which images and advertisements were increasingly inherent to professional work¹³ and in which popular culture was overrun with images broadcast on millions of newly acquired television sets. The AIA, however, did allow the publication of: 'factual materials...which dignify the profession or advance public knowledge of the Architect's function in society'.¹⁴ CRS, which was conscientious about following AIA decrees, used this 'loophole': as each of the CRS research reports made clear, they were published 'in the interest of improvement and appreciation of architecture'¹⁵ and not merely as graphic representations of the firm's work.

At a more fundamental level marketing through research was also a way of resolving what Magali Sarfatti Larson has called the basic paradox of discourse in architecture: its simultaneous *autonomous*

RESPONSIBILITY CHART					
INDIRECT PROMOTION	CAULDILL	ROWLETT	SCOTT	BULLOCK	PASEUR
CONVENTION ARRANGEMENTS & SCHEDULES					*
MAILING LISTS				*	*
PROSPECT DEVELOPMENT					*
SPEECHES & PUBLICATIONS	*			*	
BROCHURE & PUBLICITY			*	*	
PROMOTION MATERIALS			*		*
CLIENT RELATIONS					*
ASSO. ARCHITECT RELATIONS		*			*
CRS "BELIEVER" RELATIONS		*		*	
GOVERNMENT RELATIONS				*	
REGISTRATIONS				*	
BUILDING SPECIALIST	*				
DIRECT PROMOTION					
APPLICATIONS & QUESTIONNAIRES		*			
INTERVIEWS			*		
INTERVIEW FOLLOW-UP					*
CONTRACT NEGOTIATIONS				*	

Figure 2. An undated chart outlining the roles of CRS partners in indirect and direct promotion. (Courtesy of the CRS Center, Texas A&M University.)



and *heteronymous* nature.¹⁶ She explains that in order to be respected as professionals in their field, architects must see at least some of their designs to completion, and for this they need clients who can fund the building projects. This support, however, is not enough. Architects' professional legitimacy and prestige — their cultural capital in their professional field — are determined not by their clients but by their peers. Thus architects must *simultaneously* address and conform to the demands of both their public and their peers, balancing the expectations of each group. Ideally this

balance results in a unified presentation of the firm's work that combines the approach to architecture and design (architectural theory) and the more mundane issues such as marketing, so necessary for the relations with clients.

The CRS 'Research Attitude' did just that; it 'sold' the firm's services without diminishing its professional capital. And indeed, the 'research through marketing' approach was successful only as long as the broader social and cultural predisposition to research continued, and as long as the CRS partners managed to negotiate Larson's paradox.

Figure 3. The entrance to the CRS office in Houston, Texas; known as the 'White House', it was completed in 1968. (Courtesy of the CRS Center, Texas A&M University.)

In its third decade, CRS (as Paolo Tombesi has shown¹⁷) changed character and emphasised profit over professional service. In these new circumstances research was no longer integrated into the firm's design and marketing approach, and the two functions were no longer attuned to one another. Without this balance, the marketing strategy did not achieve its goals and was at first discontinued and then revived in another form.

CRS I and CRS II

In 1946 CRS was a small two-person firm in Austin, Texas. The partners, Caudill and John Rowlett, soon moved eastward to a town named College Station. There they rented office space above a grocery shop next door to the TAMU campus. Both partners had teaching positions in the architecture department at A&M, and Caudill was already involved in organising the Architecture Division of the TEES. The American postwar research effort was based on the assumption that research should be directed by *scientists* through professional publications and peer review, rather than administrators and politicians. Thus, although the federal government and the military provided funding and support, American research remained decentralised and pluralistic, based for the most part in universities and the research departments of large corporations rather than government agencies. TAMU, as a member of this wider cooperation (often called the Military Industrial Complex), was a beneficiary of large resources and had the means, and incentives, to support innovative research throughout the institution, including in emerging research fields such as architecture. The department of architecture at



TAMU also had an interest in research as a way of establishing a firm theoretical basis for modern architecture and design. In an ideal institution, Caudill explained: 'The staff should practice architecture (to understand the problem), then do research (to find out how to solve some of the problems), and then teach it (pass on to the students his broad experience and knowledge).'¹⁸

From its modest beginning, CRS is a story of meteoric rise followed by rapid disintegration. If at first Caudill and Rowlett had to rely on teaching to subsidise their fledgling firm, within a few years it had grown into a six-person partnership with several regional branches. Within ten years CRS was incorporated, and within twenty-five the firm employed about 250 staff members and had built its flagship office in Houston, Texas, aptly nicknamed the 'White House' (Figs 3, 4). CRS also



Figure 4. The interior of the 'White House' in Houston, Texas. (Courtesy of the CRS Center, Texas A&M University.)

worked with clients and expanded its building repertoire, which in the early years was based predominantly on educational facilities (both schools and colleges): one of the central markets in the burgeoning American society and one in which CRS gained a national reputation. In 1955 CRS designed, for example, the Odem Elementary School in Texas (Fig. 5); by 1961 it had expanded its practice to design a college in nearby Colorado (Fig. 6). In 1965 CRS was building the Education School for Harvard University, in Massachusetts (Fig. 7), and had also ventured overseas (one of the first American firms to do so), to design the University of Petroleum and Minerals in Dhahran, Saudi Arabia (Fig. 8).¹⁹ Altogether, the firm designed almost 200 educational buildings in North America alone.²⁰ In the 1960s CRS also expanded into medical buildings, a similarly structured but more lucrative market in those years.²¹

1971 was the turning point in the firm's history: CRS became the first architectural firm to be listed

on the American Stock Exchange. Tombesi describes the ensuing changes:

The early 1970s form a dividing line between two business worlds: one ambitious but still service-oriented, centred on architecture, made out of individual personalities, imbued with a humanistic ethos, and concerned with collaborative design and with the public mission of research; the other unambiguously profit-oriented and yet progressively more anonymous, engineering based and strategically resorting to takeovers, characterised by participation in building markets rather than the design of individual structures, and keen on the acquisition of proprietary technology and capital development.²²

Tombesi differentiates between CRS I, the rising, professional firm, and CRS II, the commercial enterprise. CRS II lasted only twenty-three years. Although the firm continued to garner attention, it had by now moved away from its roots in both its design and its research approaches, and, despite professional

Figure 5. Odem Elementary School in Odem, Texas, completed 1955. The design of the Odem School, including the central courtyard in the image, was based in part on Caudill's book on school buildings. CRS often used a 'squatting' strategy: A team of architects spent a week 'on location', working with the future users of the building – children, teachers and parents – to develop an initial scheme. Construction was then supervised by a local firm working in partnership with CRS. (Photograph by Roland Chatham, Bryan, Texas.)



success, did not produce the financial rewards expected of it. In 1994 the professional service division of the corporation (entitled CRSS, following a buyout of the firm Sirrine) was purchased by its long-term competitors, HOK and Jacobs Engineering, and disappeared as an independent professional entity.²³

The CRS 'research attitude'

When Caudill and his partners adopted research as a mainstay of their firm, *architectural* research was still in its infancy. Research on housing, as both a social and a technological problem, had been funded by government sources from the early 1930s²⁴ but twenty years later was still, for the most part, conducted outside schools of architecture.

The building industry did support building research, but as a relatively small and weak industry (compared, for example, to the aircraft industry) its impact was small. Caudill's understanding of research, therefore, drew more on the American ideology of research²⁵ than on particular precedents. In an internal CRS memorandum (part of an almost daily series named TIB, for 'This I Believe'), Caudill expressed a witty understanding of research that can be easily recognised as part of the wider American consensus:

When ... I (was) with the Texas Engineering Experiment Station, (my) boss ... poked his head in our lab and said:

DO YOU KNOW WHAT YOU ARE DOING? OR IS THIS A RESEARCH LAB?

If we knew what we were doing, it would not be research.

I have the feeling sometimes that there are only two places in this building where the people really know what they are doing – the little girl's room and the little boy's room.²⁶

CRS, however, needed research to be part of its approach to architecture, and indeed Caudill adapted the term to professional architectural practice as well. The most specific and comprehensive description of this adaptation was used in both research reports and in promotional brochures:

What is research? To us the word means the pursuit of perfection. It means working towards the improvement of planning techniques — the development of new ways to make buildings more functional, more attractive for living and working, and more economical. It means, too, the development of new ideas for lighting,

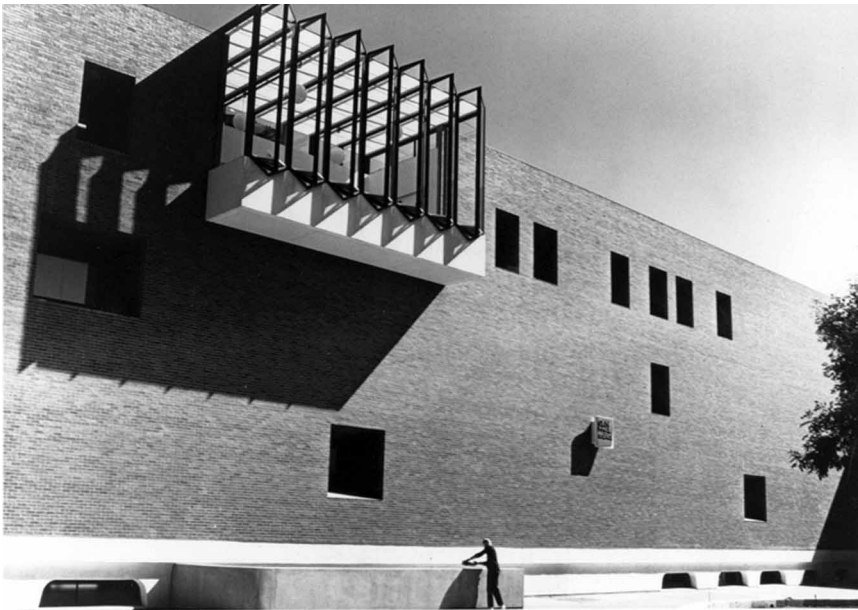


Figure 6. Olin Hall of Science, Colorado College, Colorado Springs, Colorado, 1961. The design of Olin Hall was based on what the architects called an exoskeleton: all the utilities were located in the double, mostly windowless, outer walls. This strategy provided flexibility in the interior design and the possibility of moving laboratories as projects changed. The building received two awards of merit from Texan chapters of the AIA and many in the firm felt it was one of the best buildings CRS designed. (Copyright: Rondal Partridge, 1961.)

ventilating and sound conditioning buildings. Research means finding new uses for old materials and finding ways to give assurance of safety and low maintenance in the use of new materials... Architecture research is a thinking process toward the perfection of man's physical environment. We like to think we have such a research attitude.²⁷

So as to make the most of their 'research attitude', the CRS partners recruited team members to become specialists in school buildings, medical facilities and other building types. They thus ensured that marketing was never divorced from other work in the firm: all promotion was done by in-house architects,

who also continued to be involved in the design and construction of buildings and the search for new processes and materials. These CRS specialists were responsible not only for expanding and updating their own knowledge, but also for cultivating connections with other experts — actually called 'friendships' in the 1960 Policy Manual²⁸ — by attending and presenting at professional conferences. Even more important than speeches, however, were the publications. All CRS team members who were involved in innovative processes or designs were expected to publish material about their experience in in-house research reports, architectural or other professional magazines. In a 1959

Figure 7. Roy E. Larsen Hall, the Harvard University School of Education, Cambridge, MA., 1965. The CRS response to the Harvard campus was to put emphasis on the monumentality of the building and design in local materials, ie, brick. The building was often compared to Le Corbusier's Ronchamp Chapel. Caudill acknowledged some similarity, but insisted that it was in the connection to the ground, the massing of the building as a cube and the sculptural roof rather than in the design of the windows. Caudill was happier with the similarities drawn between Larsen Hall and the Whitney Museum in New York. (Courtesy of the CRS Center, Texas A&M University.)



memorandum, Caudill described the rationale of this strategy. Writing about one of the Arch-Arch reports he explained:

I think the package itself has some use in promotion. A (partner) could pull it out of his briefcase and say something like this to a prospective client: 'See. Here's the way we do these things.

A problem arises that requires fact-finding. We give it to R&I and they dig up the information needed. They also bring in many specialists within our firm and the important thing is that (if) they find out that some of the answers cannot be obtained within the firm, so they go outside and by consultant talent. Then we have



Figure 8. University of Petroleum and Minerals, Dhahran, Saudi Arabia, begun 1965. CRS worked for 25 years on the planning and design of this university, which was renamed the King Fahd University of Petroleum and Minerals. In the 1970s this and other Middle Eastern projects were the mainstay of the firm. The design was based on the abstraction of local, Arab, architectural motifs and their adaptation to poured concrete — the material of choice for the university. (Courtesy of the CRS Center, Texas A&M University.)

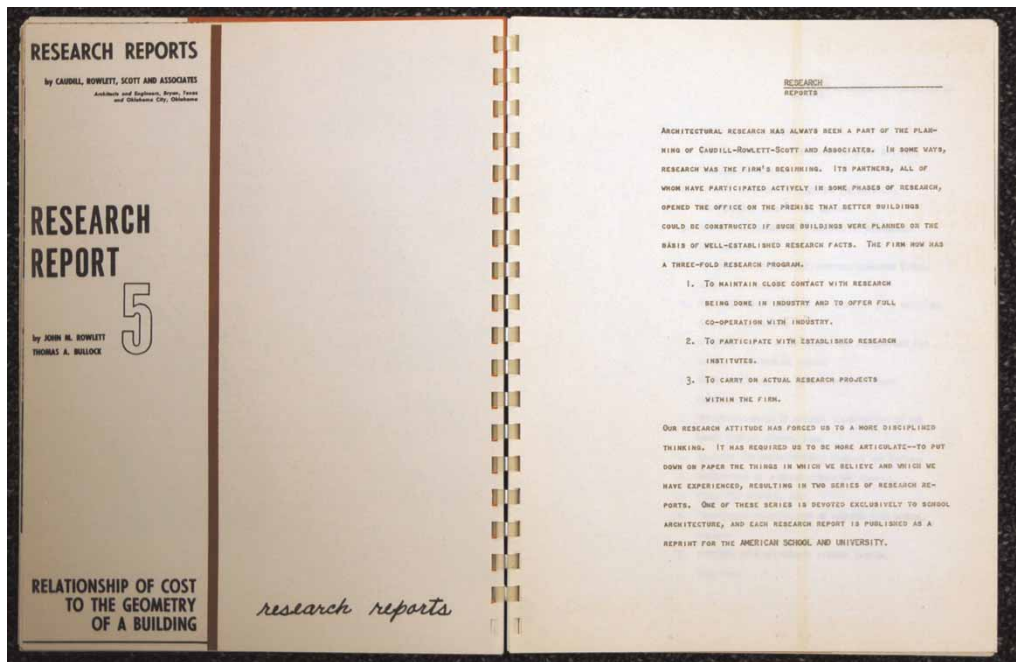
the results all wrapped up in one package, which we give to a pleased client.²⁹

Incorporating research into architectural practice was not without its difficulties, since it put an extra burden on the work of the firm. The R&I (Research and Information) Department mentioned by Caudill never quite materialised, mostly for lack of funds; as a service section, the R&I Department did not support itself. In 1960 Tom Bullock, a CRS partner and the Managing Director, estimated the cost of such an R&I programme at \$74,500, much more than could be set aside from the income from architectural commissions.³⁰ In the same internal memorandum he warned his partners: 'Right now we are certainly reaching a momentum as far as R&I are concerned. This must be matched

with our ability to afford it and in this respect, I can assure you that CRS, though in a good position to do it, has not yet reached the momentum that needs to be reached business wise.'³¹

Research, however, was not only a marketing strategy but also part of a professional philosophy, and the financial difficulties were for a long time offset by the partners' attitude. All the CRS partners believed that research led to breakthroughs in design and to modern architectural solutions.³² As Caudill characteristically explained: 'I firmly believe that the greatest advancement in architecture will be made through research much more than through reading the Wright Bible or the Corbu (*sic*) Bible.'³³ Research became a central element in the CRS design credo, which defined good architecture as a social art,

Figure 9. Research in a CRS promotional brochure 1959. The brochure also included descriptions of the firm's building types, examples of CRS designs and a long discussion of teamwork in the firm. (Courtesy of the CRS Center, Texas A&M University.)



shaped and directed by human needs, which could be rationally defined and solved. Research contributed to this ideology as a method through which to gather input about the needs and desires of the people for whom architecture was designed and as a way to approach and resolve their problems once they had been identified.

Thus research remained an integral part of the firm's practice and especially the centre of its marketing strategy, and it was this dual role that made it effective (Figs 9, 10). 'Research' 'spoke' to potential CRS clients who sought professional services.

These clients were willing to pay, at least in part, for the research completed in the firm. This success is clearly evidenced in the financial growth of the firm and in the national and international reputation it developed. CRS was also recognised as expert by lay people and professionals who were not architects, especially those in the fields in which CRS specialised, such as schools.

Research as 'professional capital'

As a solution to Larson's paradox, 'research' in CRS was also a way of conforming to professional



expectations and establishing a high professional status. Here, too, the CRS partners were tapping into the pro-science attitudes that prevailed in the postwar years. But in professional circles the

choice of research was even more specific. By emphasising 'research' over science, technology, efficiency and function, Caudill and CRS spoke directly to a national network of architects who were working to modernise and 'broaden the base of architecture'³⁴ (in other words, to professionalise it further) by developing academic research in design and architecture and by coupling architecture with the social sciences.

In 1946, in an effort to organise 'research for architecture', the AIA established a Department of Education and Research. Its first director, Walter A. Taylor, clearly looked forward to the accumulation of knowledge originating in the professional practice of architects and its dissemination to all members of the profession.³⁵ This organisational work ultimately led to a 1959 conference funded by the American National Science Foundation. The conference was convened to define 'research for architecture' as a separate field from building research, housing research and the development of new materials and building systems.³⁶

In a parallel effort, architectural educators throughout the USA also initiated and promoted research projects in their departments and developed the academic institutions to support them. The schools of architecture at the Universities of Michigan, Pennsylvania and California at Berkeley, as well as in the Massachusetts Institute of Technology (MIT), were all homes to research architects, emulating Caudill's role on the Texas A&M campus. In little more than a decade, research for architecture went from a set of disparate projects to a theorised approach to basic research in architecture, grounded in an appropriate academic apparatus including research centres and

Figure 10. From Texas Engineering Experiment Station (TEES) Research Report no. 36, Geometry of Classrooms as related to Natural Lighting and Natural Ventilation, by Caudill (July, 1952). (Courtesy of the CRS Center, Texas A&M University.)

graduate programmes. This new discipline tapped into the deep resources of the postwar research universities and transferred them, at least in part, to the profession.

In presenting the work of the firm as 'research', therefore, Caudill was speaking not only to potential clients but also to an influential group within the profession and was consolidating his status as a legitimate member of this community. William W. Wurster, Dean at MIT and later at Berkeley and a strong proponent of research for architecture, wrote to Caudill in 1951: 'I have a very real impression that you and your group are amongst the very few who are coming up with reports which give authentic reference material.'³⁷ William H. Scheick, as Executive Director of the Building Research Institute,³⁸ concurred several years later: 'You can do our profession a lot of good in research.'³⁹ Caudill also contributed directly to the 'research for architecture' effort through active participation in committees devoted to gathering and promoting research. In 1951–52, for example, he chaired the AIA School House Committee and directed the writing of a 'Plan for Fostering Better School Buildings' for which the committee received considerable funding from the AIA (\$2,500 in 1950s' dollars).⁴⁰ The committee members saw this plan as part of the research effort.

One exchange is revealing, not only of Caudill's role in architectural research but also of his awareness of the duality of his research efforts. In 1953 he sent a sample of the firm's research work to Taylor at the AIA, and asked his opinion about the publication of these reports by the journal *American School and University*.⁴¹ Taylor recommended the

President of the AIA to approve the publication and continued:

I suppose he is concerned about the ethical angle in self-laudatory statements. I don't think it applies. His research work is good and deserves wider distribution. We cannot control a member's activities in research and publication even if it does boost his private practice. My mild concern is: Should we be doing this publishing instead of Dr. Cocking [editor of the *American School and University*]?⁴²

Conclusion

The CRS strategy to incorporate research into the firm's professional practice (and especially into its marketing strategy) was extremely successful in the firm's first two-and-a-half decades of work. After 1971, however, the Board of Directors took a more profit-driven approach and actually dropped research in 1975. When the research component was revived six years later it no longer was 'a thinking process toward the perfection of man's physical environment'⁴³ as Caudill had described it in the 1950s, but focused rather on the design and equipment of technology-laden and flexible office space.⁴⁴ This research supported the design work in CRS's new (and narrower) fields of interest and investments, but it was no longer part of a maverick marketing strategy. As Tombesi has shown, this change was due in a large part to the CRS growth trajectory.

What did the CRS Board — composed of businessmen and not architects — recognise about 'research for architecture', and what may architects today learn from their decision?

First, the Board's decision underlines the aptness of Larson's paradox as a description of professional discourse. Marketing through research was an appropriate and successful strategy only as long as CRS tried to 'talk in two voices' and balance the very different expectations of clients and peers. Abandoning the research-based marketing strategy was not the only change in CRS in the 1970s: it is significant that it happened when CRS no longer aspired to *architectural* professional prestige. As a commercial business, invested not only in service but also in financial investments and the acquisition (through purchase) of new enterprises, CRS no longer had to maintain a *professional* discourse. The dual tasks of marketing to clients and fulfilling the expectations of *shareholders* did not imply the same sort of divergence, and thus did not require as elaborate and time-consuming a marketing scheme. Architects today, especially those engaged in an increasingly global practice, must also resolve the contradictions between the CRS I and the CRS II models of practice. Caudill's marketing through research is an example of the creative effort required to maintain the professional model.

Second, the abandonment of research by one of the largest and most dedicated firms is an indication of an inherent contradiction in the idea of 'research for architecture.' Research by its nature is *broadly* applicable, while design produces *specific* solutions. This is not to suggest that research for architecture has disappeared. But it is not surprising that the more lasting impact of these ideas was not made through the AIA's effort but in the architecture schools — especially those located in universities that were restructured best to attract government

and industrial funding, such as Berkeley, MIT, Michigan and Texas A&M.⁴⁵ Caudill and his partners, however, overlooked these contradictions and put faith in 'research for architecture' because it fitted both their philosophical beliefs and their business goals. They did so in spite of the financial difficulty of sustaining research within a professional architectural firm. As architects continue to adapt concepts and ideas from other fields for their professional practice it behoves them to consider the inherent contradictions carefully and to recognise that overcoming them is often the product of firm determination and 'belief'.

Third, the Board's decision points to how closely marketing, and architecture as a profession and practice, are culturally embedded not only in the discourses of aesthetics, identity and technology, but also in social institutions such as the military-industrial complex and the American research university. The CRS marketing strategy was developed in the heyday of these latter institutions, and by the 1970s the consensus on research, and the power of the research universities, were severely undermined by multiple opposing views. The move away from research removed the mantle of necessity from these endeavours, and, as Bullock had warned, research did not sustain itself financially.⁴⁶ The firm could no longer view research as a form of investment, nor pass along those expenses to the client, as it might have in the 1950s. Without this larger support, 'research for architecture' as a theory, a practice or a marketing strategy could not survive, and CRS and other firms had to adopt other concepts that would suit the new economic and educational conditions. This close connection

between social institutions and architectural theory continues to shape the latter today.

The AIA eventually relaxed its rules on advertising and American architects today engage directly with a world saturated with images and marketing. The CRS marketing through research strategy, however, remains a model for creative and innovative professional strategies. The partners' belief in research enriched their designs, their professional practices and the fun they had while engaging in them.

Acknowledgements

This study was supported in part by the 2006 CRS Center Archives Scholar Award. I thank all the CRS Center staff for their welcome and support.

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 20. P. Tombesi (2006), *op. cit.*, pp.145–68.
 21. *Ibid.*
 22. *Ibid.*
 23. J King and P Langton, *The CRS Team and the Business of Architecture*, *op. cit.*
 24. Housing and Home Finance Agency, *A Survey of Housing Research in the United States* (Washington, DC, Housing and Home Finance Agency, 1952).
 25. WM Pena, 'Roots of CRS Research' (CRS Research A Division of CRS Group Inc., 1983).
 26. TIB (This I Believe) Memo ID: 719513-2 General — Research 17 December 1970. (CRS Center, Texas A&M University, 4000.1501, College Station, TX.)
 27. 'An Approach to Industrial Plant Design', *Research-Architecture Report No. 14* (CRS Archives, CRS Center, Texas A&M University, College Station, TX).
 28. Caudill, Rowlett and Scott Policy Manual, *op. cit.*
 29. CRS Memorandum to Tom Bullock, From: William W. Caudill Dated: 18 December 59, Re: Research (Caudill Papers, CRS Archives, CRS Center, Texas A&M University, 1079.1114, College Station, TX).
 30. CRS Memorandum to W.M. Pena and W. W. Caudill, From: Tom Bullock, Dated: 13 January 60, Re: R&I Program-Cost (*Ibid.*, 1078. 1205).
 31. CRS Memorandum to W. M. Pena and W. W. Caudill, From Tom Bullock, Dated: 7 January 60, Re: R&I Program (*Ibid.*, College Station, TX).
 32. This belief was contradicted by the outcome of many of the research projects. Most of the projects led, at best, to small incremental changes, or only documented innovations that had already been made, but a few projects did contribute directly to the CRS design work.
 33. Letter to Mr. Walter A. Taylor, Director, Dept. of Education and Research, AIA From William W. Caudill, Dated 19 June 52 (The AIA Archives Box 431S, Washington, DC).
 34. For example in: TC Bannister, *The Architect at Mid-Century; Report* (New York, Reinhold, 1954) .
 35. General Program of the Department of Education and Research (AIA Archives Box 534SA, Washington, DC); Report of Director- Department of Education and Research To the Board of Directors The American Institute of Architecture November 26, 1946 (The AIA Archives Box 534SA, Washington, DC).
 36. AIA, 'Proceedings, AIA-NSF Conference on Architectural Research, Ann Arbor, Michigan - 10–12 March, 1959' (Washington, D.C., American Institute of Architects, Dept. of Education & Research, 1959). See also: Special Report #4, 'A Statement on Architectural Research by the AIA Committee of Research' (The AIA Archives Box 311S, Washington, DC).
 37. Letter to Mr. William W. Caudill, Research Architect, Texas Engineering Experiment Station, From William W. Wurster, Dated 24 July 1951 (Records of the College of Environmental Design. Office of the Dean William W. Wurster Collection, Environmental Design Archives University of California, Berkeley, Box 1, Berkeley, CA).
 38. And later President of the AIA.

39. Letter to Mr. William W. Caudill, Caudill, Rowlett & Scott Architects from William H. Scheick Executive Director Building Research Institute, Dated February 25, 1958 (Caudill Papers, CRS Archives, CRS Center, Texas A&M University, 1079.1110, College Station, TX).
40. Letter to W. W. Caudill, Chairman Committee on School Buildings, AIA Dated November 30, 1951 (The AIA Archives Box 431S, Washington, DC).
41. Letter to Mr. Walter A. Taylor, Director, Dept. of Education and Research, AIA From William W. Caudill Dated 10 April 53 Subject: Research Reports (The AIA Archives Box 431S, Washington, DC).
42. Inter-Office Communication Memo to E.R. Purves (The AIA Archives Box 431S, Washington, DC).
43. 'An Approach to Industrial Plant Design', *Research-Architecture Report No. 14* (CRS Archives, CRS Center, Texas A&M University, College Station, TX).
44. P Tombesi (2006), *op. cit.*, pp.145–68.
45. R Pluntz, 'Comments on Academic Research in Architecture in the United States', *Journal of Architectural Education*, 40/3 (Jubilee Issue) (1987).
46. CRS Memorandum to W.M. Pena and W. W. Caudill, From: Tom Bullock, Dated 13 January 60, Re: R&I Program-Cost (Caudill Papers, CRS Archives, CRS Center, Texas A&M University, 1078. 1205).