THE NATURE OF A HOUSE

GEORGE M. WOODWELL

THE NATURE OF A HOUSE

Building a World that Works

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FOREWORD

As an architect, I think about design as the first signal of human intention. If this is true in any way, then George Woodwell is a consummate designer. George sees, gimlet-eyed, into the science of the effects that humans have on nature. He sees the science in the broadest sense and then moves to render visible the change he wishes to see in the world. One delightful manifestation of George's vision, perspicacity, and design is the Ordway Campus of the Woods Hole Research Center, a small complex of buildings and landscapes where researchers discover not only what is wrong is about humans in the world but also what behaviors might set things right. This is a place of wonder and healing for an increasingly distressed planet.

Just what makes the Ordway Campus such a special place? Imagine a place that generates more energy than it needs to operate, where every drop of water has been considered for the productive health it brings to the ecosystem. Imagine buildings like trees—they capture photosynthetic energy, as well as energy from the wind and the earth. Imagine buildings made of silica, carbohydrates, and metals, designed for a long useful life followed by their safe return to biological or technical nutrient flows. Such buildings show how we can conduct a creative and principled dialogue with Earth that generates a living architecture for our time—a technologically sophisticated, aesthetically rich language that celebrates people and place, community and creativity, sunlight and landscape. Imagine these

goals for a project—lofty indeed, but achievable in the lifetime of a visionary like George Woodwell.

We work with many good people who are trying to make their organizations and places more efficient and less bad. They are working toward a “zero goals.” They are willing to stop there. But being “as efficient as possible” was never the goal of the Woods Hole Research Center at Ordway Campus. George, like us, was relentlessly seeking a higher purpose by design. He was seeking a world where we are effective, not just efficient—one where we celebrate the positive effects of renewable energies.

We at William McDonough + Partners see this as the act of a true leader. As the late business genius Peter Drucker said, being efficient—doing things right—is the critical role of the manager. But it is the leader’s job to be effective—to see that the “right things get done.” We realize that efficiently managing a toxic system could never be the right thing. But effective innovations within a life-affirming design protocol suggest a dynamic path to a cradle to cradle world. In this context, George Woodwell is clearly a world leader.

So read this book, wonder at the story of this marvelous journey, and recognize the healing act that it represents—a celebration of human creativity and the abundance of a planet fused with the goodwill of its people.

—William A. McDonough, FAIA, Int. FRIBA

ACKNOWLEDGMENTS

Many friends and professional colleagues have contributed infinite details over the years to the story of the Woods Hole Research Center and its new campus, recounted in outline here. The book, however, was my own initiative that originated in a desire to capture for local interest details of the development of the idea, the roles of the people, and the ultimate construction and occupation of the new campus. There were many conversations and key decisions, meetings and missteps over years before we settled finally on the place and the course we would follow. Trustees were key, all under the leadership of Lawrence Huntington, who made his extraordinary talents universally available over a decade that spanned the September 11th tragedy, which was closer to him than most know, and the period of soaring real estate prices that drove us out of Woods Hole to Quissett and a grand new campus there. The initial plan expanded from a booklet of local interest to a larger work of more general interest under the influence of trustees, including especially long-term friend, Merloyd Lawrence, and editors at Island Press. There Heather Boyer took a heavy hand and tried hard to refocus a meandering style into a straightforward and logical book about a building as I fought to diverge into an elaboration of an ecologist's worldview and how to make the world work as a small and threatened biophysical system on the verge of irreversible decay. I owe her a big debt of gratitude for her patience and persistence and logic and for her experience in

what works in publishing and what does not. The failures in logic and diversions into lectures on ecology, where they are repetitive and disruptive, are all mine, products of bone-headed persistence against experienced advice.

Katharine Woodwell, who has made my life easy and thoroughly enjoyable over more than fifty years, and who had a powerful administrative role in building the Woods Hole Research Center and the design and construction and occupancy of the building, has also had more to do with clarity and precision in thought and deed of all the participants than she knows. Spare of words, quick of humor, unflappable, she had us all dancing regularly to a delightfully constructive tune.

I have consulted many over the years in which we have conducted this experiment. Dennis Dinan joined our staff from Avon Old Farms School and from many years at Dartmouth and brought a relentlessly systematic and imaginative approach to fund-raising and his own personal brilliance to writing and editing. Gilman Ordway and Gordon Russell, both trustees, displayed early confidence in the plans and programs of the Center and offered major intellectual and financial support. And I was fortunate in being able to call on longtime friends from science and conservation to serve on our board: John Adams, Steve Curwood, Thomas Lovejoy, Victoria Lowell, Mary Lou Montgomery, Lily Rice Hsia, Wilhelm Merck, Amy Regan, Joseph Robinson, Tedd Saunders, Helen Spaulding, Ola Ullsten, Sarah Brown, Jim MacNeill, Ross Sandler, and Gus Speth, as well as John Holdren, who ultimately brought his vigor and extraordinary competence to the directorate as I moved on to emeritus status.

Michael Ernst, Joe Hackler, Tom Stone, Greg Fiske, and Allison White all helped with various aspects of the details of this book. And I have talked with and leaned on the experience of many others, including Fred Palmer, Judy Fenwick, Kilaparti Ramakrishna, Jennifer Gaines, and the Woods Hole Historical Society as well as the Woods Hole Library.

It was a special pleasure to work with Bill McDonough and his architectural colleagues, especially Mark Rylander, who was our principal

architect, and their consultant and our friend, energy expert Marc Rosenbaum of Energysmiths.

All have been most generous, including a series of readers who have offered a range of valuable comments and recommendations. Omissions and failures are not their's but mine alone.

PREFACE

A Small Matter of Habitat and Housing

Cassandra sits in high places today.

— John Sloan Dickey, President of Dartmouth College,
addressing the Great Issues course in 1950

I undertake this writing more than fifty-five years after hearing John Sloan Dickey discuss with graduates of Dartmouth College the hazards of life in the new political context of a nuclear-armed world, then only five years old. We have not outlived the nuclear threat, but we have survived it. We have survived to encounter an additional set of biophysical environmental challenges that are in fact far worse than threats. They are transitions in the earth's systems that systematically undermine the human habitat even as human numbers and needs for resources soar. The threat of a nuclear Armageddon continues, worse in many ways for the spread of weapons into the hands of rogue states, combined with the emergence of new rogues from once responsible states. But, so far, it remains a threat, not a reality, despite the periodic eruption of irresponsibility among the nuclear-armed nations. In contrast, the erosion of the global human habitat has become reality and scientists now recognize that, unless we can make drastic changes immediately in this fossil fuel-powered civilization, we shall find ourselves

quickly, year-by-year, on a new, increasingly unstable and hostile planet, a disaster no less final than the nuclear Armageddon we have feared for so long.

Even that thought, simple as it seems, has had a long gestation and will be developed further as experience accumulates from experiments such as the one described here as the Woods Hole Research Center explored how well it could do during the very first years of the new millennium in constructing its new campus within the famous scientific community of Woods Hole. It is not adaptation to an irreversibly eroding environment. It is a cure, boiling up from the bottom with all the optimism and vigor of science. Not muddling through, but actively reaching for a big step into the new world we have to envision and build. We are not alone in envisioning a major transition in human affairs, but our emphasis, in contrast to the social and political stirring that Hawken has defined so eloquently,¹ is on the biophysical core and keeping it functional.