CHAPTER 22

Making Wholeness Heals the Maker: A Generative Design Experiment for Personal Healing and Ecosystem Restoration

Kathryn Langstaff

There is a direct connection between the living structure of the world and the achieved person-ness we experience in ourselves (Alexander, 2004, 265). In 2011, I began a building experiment to make a built-in bed alcove and bookshelves for my child. I sought to use the process of unfolding wholeness and the generative design methodology to create with two foresters, a craftsman, my husband, and my child, a built-in bed alcove that would imbue living structure in our lives, the forest and our 1903 farmhouse. Within 30 miles of my home in Portland, Oregon, I was able to source materials whose harvesting improves the health of the forests and its watersheds and make a bed that comforts my daughter allowing her to sleep peacefully and restore her equanimity each night. Remarkably, the process of making this bed healed a deep well of grief (Whyte, 2007) that I was holding in my heart. This chapter is my personal experience with Alexander's teaching on Making Wholeness Heals the Maker (Alexander, 2004, 261-270).

DOES THE THING YOU HAVE MADE MAKE YOU FEEL MORE WHOLE WITHIN YOURSELF?

This is an enduring story of a timeless way of building and a story about grief and love. The grief of losing my father and the grief of our ancient forests being destroyed, for lack of will and commitment to preserving the ecological functions that support life, culture and our heritage. And it is a story about love. The enduring love I have for my only child, for my father, and for the ancient forests of the Pacific Northwest. As a designer, I feel a responsibility to choose materials

carefully to preserve rare habitats and the life they support for our children and for future generations to enjoy. I offer the lessons learned from my attempt to employ a humane and sustainable building process that respects users' practical, emotional, spiritual, and cultural needs in support of material choices and a building process that creates beauty and ecosystem vitality in the process of making.

I began working on a bed alcove for my daughter in 2011. Sophia was nearly 11-years-old and had outgrown the hand-made cherry antique bed her great grandfather, James Douglas Langstaff, had made for his children (figure 1). It was a twin bed with a matching children's desk, handmade with love and marked with the dents and stains from use over the more than 100 years of its life. My grandfather owned a lumber mill in Kentucky and my parents inherited some of the early American furniture he made. I was fortunate to grow up with this furniture imbued with a story and my ancestor's love. Warm to the touch and solid, the curves of the headboard and posts reflect a child's need for stability and comfort. It was against the fiber of my being to drive to IKEA and buy a bed for my daughter that would take her from childhood, through early adolescence, into adulthood.

Figure 1: Early American Cherry Child's Bed made by James Douglas Langstaff circa 1900 in the alcove.

Source: All figures are by the author unless noted otherwise.

Our home was built in 1903. It is a humble farmhouse that was moved in the 1920s to its current location in Portland, Oregon. We chose it for the beautiful reddish tones of the clear vertical-grain Douglas fir that radiates warmth in the stair treads, the floors, the 5-panel doors and the window trim. It has close to nominal 2x4's made from old growth Douglas fir with steel-cut nails. It has always been a working man's home and when we bought it lead tests proved expensive lead paint for the trim was out of reach of the previous owners. The failing plaster walls also showed the poor quality of finish materials. We were attracted to the bones of the house, its solid foundation and the sturdy framing lumber and nails that protect us in recurring and forceful northeasterly winds from the Columbia River Gorge. Our turn-of-the-century home has a wrap-around front porch and a corner fireplace in the living room. It is cozy and has a timeless quality of materials that is unmatched in our society today. In its 108th year, we began adding some built-in cabinetry, insulation and energy efficient appliances. Our intention is to add to our home in a piecemeal manner that is respectful both to nature and to the integrity of the house. Through these significant adaptations we want it to continue to nourish us, and provide a sense of belonging to our family and friends. We want to move it into the 21st century as a solidly built, energy and water-efficient home ready for its next 100 years. When we recently replaced the second-story windows with energy efficient ones, we discovered that the window trim had been hand planed. With over 200 bit profiles in Portland, the contractor had to have one specially made to match the profile of the existing windows. Hand-cut nails and hand-planed window trim are characteristic of the person-ness that is reflected in our farmhouse.

I Am Making It and It Is Making Me

When architects produce drawings for cabinetry and built-in furniture, they specify the type of wood and finish and either ask to review shop drawings or design the intricate details of the cabinetry in a full-scale drawing. In the case of our historic home, to match the Douglas fir interior an architect would specify clear vertical grain Douglas fir or "CVGDF". This presented an ethical dilemma for me, as CVGDF can only be obtained from ancient trees where growth rings are regular and very close together. Since over 90% of old-growth forests have been cut down in the Pacific Northwest over the last 150 years, specifying CVDGF contributes to an additional pressure on the remaining old-growth forests (Langstaff, et al, 90-99). I value the majestic emerald green forests of the Pacific Northwest. The wildlife, purity of the air, fresh water, and the access to wilderness are the reasons why I chose to live in this area.

The challenge, therefore, became how to design a built-in bed alcove, bookcase and storage cabinet using second-growth Douglas fir and create something beautiful as a gift to our home. Second-growth Douglas fir has wood knots, wide grain and dark wood stains like birthmarks. How would I determine which piece of wood to place in each member of the built-in to create harmony and beauty? I needed Mike Hoffman, a talented and patient craftsman who had lovingly helped restore our home, to help me engage in this unfolding design process. His skill and expertise were essential to our success as was his sensitivity and pure and humble heart. Mike is a kind soul who has always been attracted to Christopher Alexander's work. Since we had worked together on several projects over the years, I knew I could rely on him to meet me on this journey.

The Well of Grief

At the same time, as I wondered about the design and process of making a bed with wholeness, there was my lingering grief over the sudden passing of my beloved father. Was it even possible to transform the grief within me to peace or joy through this building experiment? I found myself awake in the early morning, a slow and steady stream of grief welling inside me. In the 20-month period of family crisis of my father's illness, my child had grown. I was awake with the anguish of unfulfilled promises: the round cob library for her Sylvanian family forest critters and the fairy house we started on Salt Spring Island were unfinished. I would not be able to capture her imagination now, at almost 11 years of age, to complete these projects. As I continued to let these feelings arise, I lay in bed and deepened my love for myself… I pledged to myself to put my love for Sophia into the bed alcove I was making for her.

My teacher Christopher Alexander used to say: "I am making it, and it is making me." He also held up examples of soulful work created for the love of God, not for oneself.

Deep Feeling: The Aim of Every Living Process Is, At Each Step, To Increase the Deep Feeling of the Whole

One of the critical design tools we work with at autopoiesis, llc is scale linking within whole systems. We look for recursive patterns, fractals that occur at all levels of scale, as we try to design with living systems. The diagram below (figure 2) shows the connection between the ecosystem scale of healthy forest habitats and watersheds and the human scale of wholeness and wellbeing. In a closed loop, every process affects every other process. This diagram illustrates a

generative process that links furniture details, families and forests, offering opportunities along the way to recursively refine and enhance the emerging structure of wholeness to create living structure.

We try to design in a way that improves health at every level of scale. This is not easy and requires careful attention to detail, an awareness of the whole system and, most importantly, collaboration. We have found that there are like-minded people in many different fields who work to preserve and enhance natural systems while also valuing the beneficial effects of ecosystem health on human health and wholeness. Trans-disciplinary teams may include philosophers, ecologists or biologists, landscape designers, farmers, foresters, craftsmen, building designers or architects, engineers, hydrologists, health professionals, investors, and policymakers.

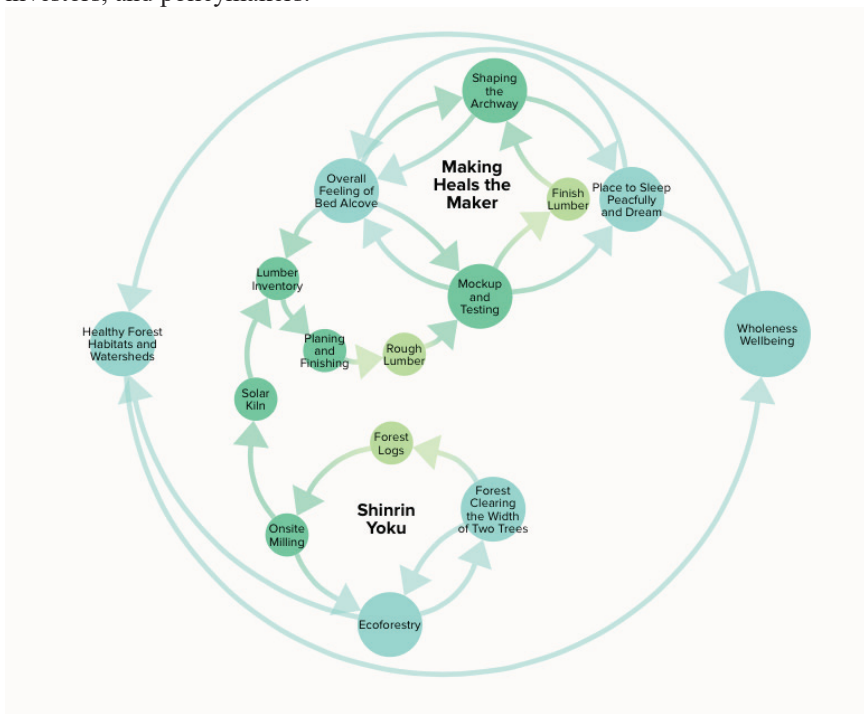

Figure 2: Recursive Generative Process for A Bed Alcove.
Source: Kathryn Langstaff and Christina Bowen.

> From the feeling that exists in us as our reaction to the wholeness that was originally there, we progress, step by step, towards a geometry which induces in us, a more and more intense feeling. I judge my success as an architect, at each moment and at every step in the

> emerging process, by the degree to which the work, as far as it has gone, intensifies my feeling when I am there - and, by extension, intensifies the feeling of every other person, too. That is the essence of a living process. It is a movement towards a structure which is precious. And, above all, it is a movement toward a structure which makes us feel our own existence deeply. (Alexander, 2002b, 373)

As Mike and I sat and drew details of the bed framing on butcher paper, I explained to him that my tears were both the unspoken grief I held for my father and for the loss of time with my young child. I pledged to turn this sense of anguish into love and beauty and to handcraft a bed to hold my precious daughter. This is the gift my teacher gave me: to know my true feelings and to use my craft in support of life, to make wholeness in the world and allow it to unfold in harmony with life. Chris would teach us to put every emotion - love, grief, fear - into what we made with one rule: that we would make the world a better place. I understand now the profound opportunity he gave me, to become more whole as a maker.

Walking into the unknown is what happens when one endeavors to follow their heart. It takes years of practice and failure to become comfortable with not knowing, and trusting that the process of unfolding wholeness will indeed take one towards the desired goal. I found it enlightening in the design studio when Chris would describe the 10,000 steps necessary to achieve wholeness in a built project. He said he would often start with the goal of reaching the Potala Palace and venture out only to find that he had reached McDonalds. I found this to be incredibly challenging, if not impossible, given that I was often not aware of my own feelings. I eventually developed a respect for feeling and a profound comfort in my own intuition that has become vital for the continuous sensing, feedback and adaptation required for generative processes. Based on the initial, rough design concepts for the built-in bed alcove, bookshelf and cabinet, we were able to determine an estimated take-off of the required lumber. The next step was to source the lumber by visiting its forest of origin.

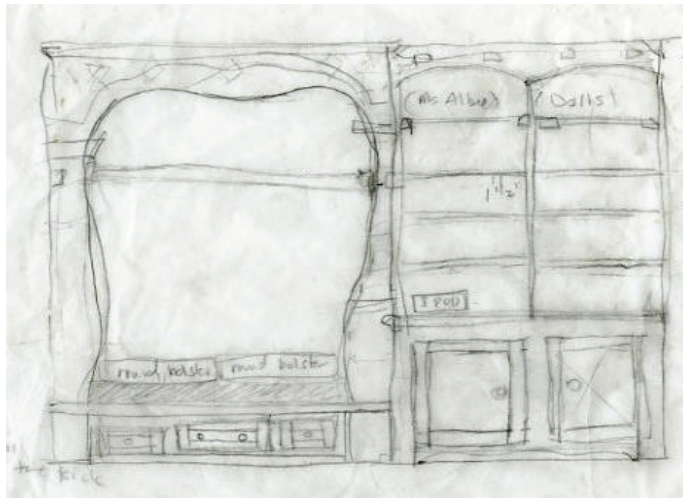

Figure 3: Initial rough sketch of the bed alcove, bookcase and cabinet.

HYLA WOODS, MOUNT RICHMOND, OREGON

> Equally, the ecologists, biologists and forest management people try to create a system of patterns for centers which provide the underpinning of a living ecological community. (Alexander 2002b, 346)

My husband Stuart, Mike and I met Peter and Pam Hayes at Hyla Woods, Mount Richmond, Oregon, a 500-acre site 30 miles from our home. We were in search of Forest Stewardship Council (FSC) certified Douglas fir for the built-in furniture we were creating. We wanted to work with real wood, grown and milled close to home in a manner that creates healthy habitats, clean water and fresh air. We wanted to support local businesses that enhance ecosystems while providing humane employment and meaningful products. On this basis, we chose Hyla Woods as the FSC-certified forest to provide the wood for our home. We walked in the forest and learned about the eco-forestry stewardship of this husband and wife team.

Like the "Farmer-Chef" connection that has recently become quite prevalent in Portland, the "Forest-to-Dwelling" connection was emerging in 2011. We walked the forest in October on a beautiful fall day, with crisp air and streaming sunshine. We learned about the solar kiln for slowly drying the milled lumber. We explored the circles within the forest that were carefully cleared for new growth and biodiversity. The pattern of *Forest Clearing the Width of Two Fallen*

Trees was ideated by the Hayes, later to be independently determined as a "best practice" for eco-forestry.

We ate lunch in the Hayes' modest cabin with nine different wood species showcasing the diversity of their forests (Douglas fir, grand fir, western red cedar, big leaf maple, Oregon ash, red alder, Pacific yew, cherry and black cottonwood). After lunch, we piled into the truck and drove to a recent forest thinning. Then we walked through the forest looking at the stands of trees as our bodies relaxed and our nervous system was restored through breathing clean air filled with oxygen and through observing bear, elk and deer footprints. Pam helped us harvest fist-sized chanterelle mushrooms as a savory treat to take home. Like every walk in nature, this experience has stayed with me. We left with tremendous gratitude for the stewardship and careful tending the Hayes' bring to Hyla Woods. Peter invited us to bring Sophia to the "100 acre wood" to show her the forest and the tree stump where the wood for her bed alcove, bookcase and dresser came from. We decided it was important for her to understand the source of the wood for her new built-in furniture. Four days later, on another glorious day in October, I took Sophia to Hyla Woods to meet Peter, the forest, and the 90-year old stump left over from the wood harvest - and to choose the wood that would soon be accompanying her at home.

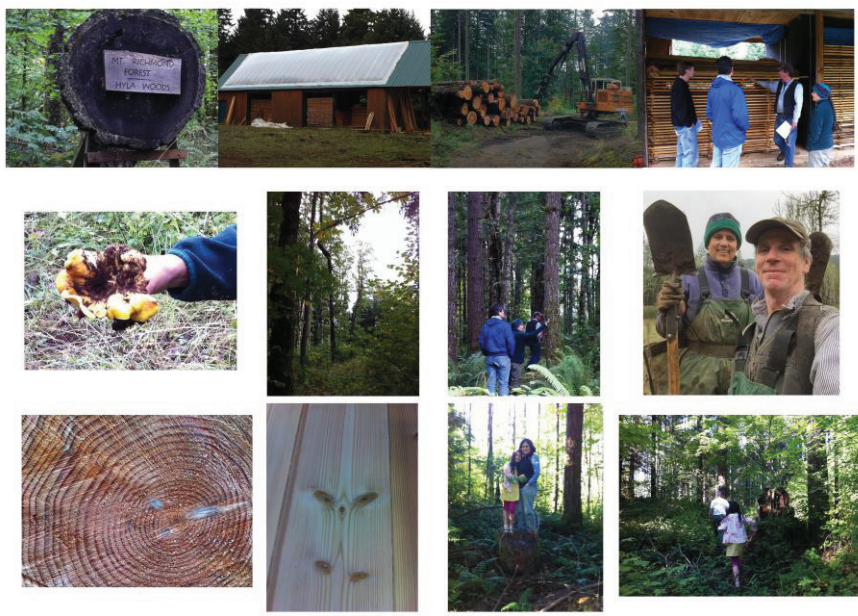

Figure 4: Images of Hyla Woods, Mount Richmond, Oregon.

Generative Processes for Ecosystem Restoration and Human Well-being

My child has always started to run when she encountered a forest, her long dark hair blowing behind her as she lets go and becomes one with this living being. Like most children, she becomes her environment.

Peter wanted to know her proclivities for the character of the wood. Did she like unique features, wood knots, anything in particular? He also tested her logic and knowledge of local species. We toured on his "iron pony" through the forest to the stump of the tree. We thanked the tree and the forest for their gift. Peter then walked us to an area where we could search for more chanterelles and pointed out the regenerative self-seeding in the *Forest Clearing the Width of Two Fallen Trees*. He showed us the young and mature western red cedar, Douglas fir and big leaf maple trees. He clearly loves what he does and is able to effortlessly impart ecological literacy. I am indebted to Peter and Pam for helping to teach my child both the responsibility of stewardship and the abundance of eco-forestry.

Peter then gifted me with another profound statement about Shinrin-yoku (Forest Bathing, Wikipedia contributors, 2016, February 25)."It is true," he said, "that the Japanese have a name for the quality of air that the forest creates. It is proven to heal ailments, and being in a forest improves one's eyesight." Studies support claims of the benefits of Shinrin-yoku and have demonstrated that exposure to forest air creates calming neuro-psychological effects. In Japan there are now 44 accredited Shinrin-yoku forests. As humans we have so much to re-member and re-learn about the subtle qualities of our senses and our wellbeing. No doubt the previous century has left us dull and numb to our own senses and to these rich and delicate experiences found in nature.

Harvesting, milling, joining, surfacing, and sanding wood in Portland, Oregon, is an amazing experience. Creative Woodworking Northwest is less than a half-mile from my house which allowed the locally sourced rough lumber to be finished in my own neighborhood. In a single day, the forester delivered the wood I had personally selected, and Mike and I were directly supervising its finishing.

One week from the time Mike and I mocked up and roughed out the design of the bed alcove and bookcase, we were working with beautiful, character-filled, locally sourced, FSC-certified Douglas fir and Western red cedar. We hoped to make something worthy of the 90-year old tree that gave itself for our home, of the Hayes' who steward their land so remarkably, and of the future families that will live in our home.

THE PROCESS OF MAKING: STRUCTURE-PRESERVING TRANSFORMATIONS

> In order to make buildings by unfolding - hence by structure-preserving transformations - it is necessary, truly, to pay attention to the wholeness in the world. This 'paying attention to the wholeness' is essentially synonymous with love of life… It means taking in the whole, enjoying it, seeing it all, bathing in it, *loving* it. ("Love of Life", Alexander, 2002b, 103)

Figure 5: Mock-ups and adaptation generate happy feelings.

Building the Alcove as the Frame for the Bed

The following are the steps of structure-preserving transformations used to design and build the bed alcove.

> Step 1: Generate a wholesome feeling of "roughness" & "simplicity and inner calm" for the overall bed alcove.

You can see from the mock-up with the old bed and broken IKEA dresser (figure 6) that we are testing the overall concept and this geometry does not have very much life. We continued to test the overall form and proportions to bring more life to the artifact. When this process goes awry, Chris always instructed us to go back to the last place we were certain that we were on the path we desired and start again with experiments to try to generate wholeness and the overall feeling we were aiming for. He instructed us to work in areas adjacent to the problem to intensify other centers that might shed more light on the "tough problem." In making the bed alcove, I had difficulty with the shape of the vertical "legs" that flowed from the main arch and created the shape of the bed alcove opening.

Therefore, I moved my attention to the structure of the alcove and the cabinet beside it.

Figure 6: Step 1 - Mocking up the alcove opening.

Step 2: Clarify the structure and test the wholeness of the wood placement in building the sections of the alcove.

We built the adjacent cabinet box and the bed alcove box to give more structure to the whole (figure 7), then repeated the main arch mock-up once we had more elements surrounding the bed alcove in place (figure 8).

Figure 7: Building carcass for alcove drawers, futon mattress and the cabinet; mocking up cabinet face frame.

Figure 8: Mocking up the shape of the main archway; choosing wood for "legs" and main arch.

With the help of centers surrounding the bed alcove opening, it was then possible to obtain a good shape for the archway.

> Step 3: Shape the interior ceiling of the bed alcove to generate a feeling of being held.

This step involved mocking up the alignment of interior and exterior arch, and determining the reveals, bones and carriage of the ceiling, thus forming the alcove and its attachment to the ceiling.

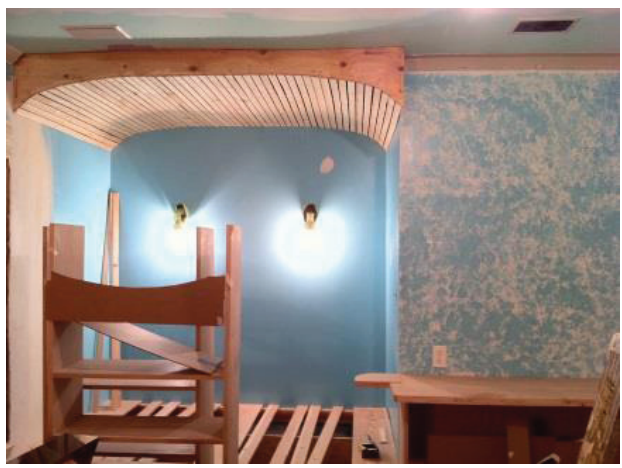

Figure 9: Alcove arch and base mock-up.

Step 4: Intensify wholeness by adding "gradients."

We tested different pieces of wood and different reveals for the parting bead. Choosing the grain of the wood with an uplifting arch helped intensify the center of the parting bead and accentuated the uplifting feeling of the arch.

Figure 10: Testing parting bead.

Step 5: Secure structure and tie the bed alcove to the bookcase using the quality of "deep interlock and ambiguity."

Joining these two elements, the bed alcove and the bookcase and cabinet, was by far the most complex part of this built-in piece of furniture. The top of the storage cabinet visible in Figure 9 is a key part of the deep interlock and ambiguity that tie the bed alcove to the bookcase. After determining all the elements of the architecture for the bed alcove, we needed to step back to let this emergent being take form. This pause is significant and marks the point in making where you need to stop and take time for an elegant solution to arise. Sometimes you can't force creativity. Chris used to instruct us to take a walk in nature, or take a relaxing bath, or do something else when we came to a problem that was a "colossal mess." Mike and I took the afternoon off and when we reconvened in the morning he suggested interior shelving to give the supportive structure the vertical leg needed for stability. This worked beautifully and added wholeness to the overall structure.

Figure 11: Creating a vertical spine with inner alcove shelving.

> Step 6: Form inner alcove shelving as strong "centers." Create a sense of "not separateness" by forming "gradients."

On the left side of the opening, we placed a long interior shelf. Sophia loves the hidden spine of the three interior corner shelves on the interior of the right vertical leg in this photo.

> Step 7: Create a shape for the opening with "positive space" and "good shape," creating larger centers and increasing the feeling of wholeness.

This step is described in detail in the next section below. After many failed attempts by Mike, Stuart and myself, Sophia came home from school one day and drew a pleasing shape on the vertical legs that created the perfect opening. When she had done this, we all knew it was right.

Figure 12: Step 6 - Mocking up the vertical shape "legs" of the alcove opening.

Step 8: Create "levels of scale" in the framing details for the drawers and test the wholeness of the wood placement in drawer fronts to intensify the wholeness of the bed alcove.

Once the overall feeling of the bed alcove was evident, we moved to the design of the drawers underneath the bed. We made the draw boxes and then tested the wood and chose the right drawer faces. The face frame combined with the drawer faces added levels of scale and strong centers and completed the bed alcove.

The Bookcase

The process of structure-preserving transformations continued in the creation of the bookcase.

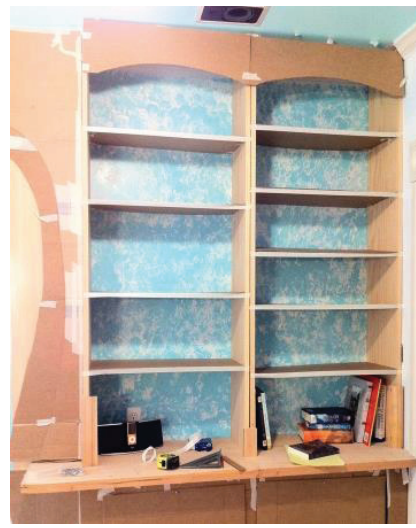

Figure 13: Mock-up Shelving and Top Arch Shape and shelves.

Step 9: Determine Dimension and Overall Feeling. Determine Height and Width of Shelving. Choose Wood. Build Face Frame

First, we chose the wood for the sides of the bookcase and tested the width of the bookshelves.

Step 10: Mock-up Shelving and Top Arch Shape. Use "alternating repetition" and "echoes" to enhance the quality of life in the bookcase.

Sophia had fun bringing in her books to test the height and placement of the bookshelves. Alternating repetition gives movement and life to the bookcase which otherwise would feel static. The shape of the arch echoes the bookshelves and creates a strong center at the top of the bookcase. When the cardboard mock up was complete, we choose the wood for the shelves.

> Step 11: Create "levels of scale" by adjusting the width of the rail to bring forth increasing wholeness.

We tested 2", 2 1/8" and 2 1/4" face frame blocks to see which had the most life. Then we tested individual pieces of wood and the grain to accentuate the overall pleasant feeling in the bookcase. We finished this step by building the face frame.

> Step 12: Intensify the wholeness through ornamentation. Test the wholeness of the wood placement in door fronts.

The cabinet doors were mocked up and wood chosen. Once again we tested the width of the door frames and the actual wood pieces for the door faces to create a strong center and enhance the life of the cabinet.

> Step 13: "Boundaries" help the entire bookcase and alcove come to life.

We did a mock-up of the toe kick. This final step helped tie the entire built-in bed alcove, bookcase and cabinet together as one piece grounded in the room.

> Step 14: Receiving wholeness.

At the end of this experiment, wholeness or wellbeing has been embedded in ourselves and in our environment. A sense of completion has arisen in Sophia's room and in our home. Our house feels more settled, our emotions are grounded and we have a warm cozy place to nourish ourselves. I like to use a beeswax finish infused with essential oils for the final wood finish. This completes the living structure and harmonizes the senses. Sophia chose *geranium* and *clary sage* essential oils to help her sleep peacefully and dream.

Making Wholeness Heals the Maker

The diagram below (figure 14) shows the recursive loop for continually mocking-up and testing each element of the bed alcove and bookcase: MAIN ARCHWAY,

LEGS DEFINING ALCOVE OPENING, INNER ALCOVE CEILING, DRAWERS UNDER BED, BOOKCASE, CABINET WITH DOORS and sensing whether it improves the overall feeling of the whole (bed alcove and bookcase) or if more tests need to be done. Slowly, adaptation happens and the life of the artifact, in this case the bed alcove and bookcase, intensifies. The quality we are designing for is captured in the pattern: A Place to Sleep Peacefully and Dream. The repeated actions of mocking-up, testing, then sensing and feeling, help to generate this quality in the actual shape of an element, choice of material and overall geometry. The sequence of unfolding will vary with the artifact and the actual structure of the place you are working on. For example, when Chris was writing *The Nature of Order*, Stuart and I would often go to his home and discuss ideas and concepts he was working on. Once we had a discussion about the uniqueness of place. Chris posited that, "The relationship existing between a Yurok Indian, a rock and the Klamath River is inherently different than the same rock, river and a jogger."

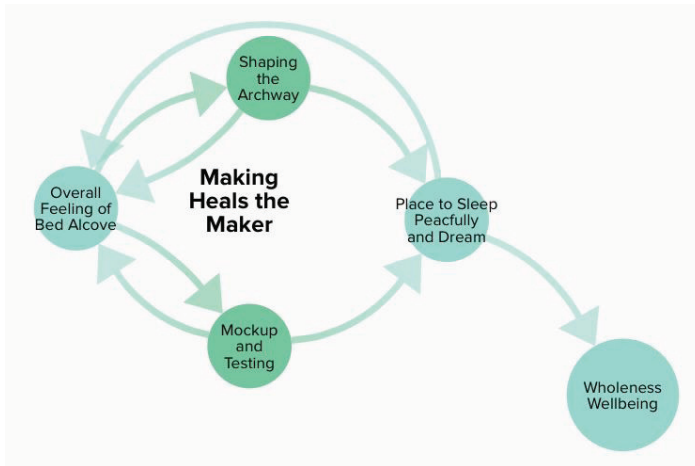

Figure 14: Recursive Loop for Generative Process for Bed Alcove Elements.
Source: Kathryn Langstaff and Christina Bowen.

An examination of the system in figure 14 with the diagram in figure 2, shows that the **Making Heals the Maker** loop may have a dynamic cycle that is different than the **Shinrin Yoku** loop. Yet they are both active forces or processes that work together in harmony to support the overall health of the forest, and wholeness and wellbeing of the humans involved. From a systems perspective, you can observe the scale linking principle (Van der Ryn & Cowan, 2007, p. 51-

61) we employ within an autopoietic system that becomes self-creative and produces emergent structure in harmony with life.

MAKING THE ARCHWAY UNIQUE: SOPHIA

> The small, step-by-step process is not only the best way to build the architecture of a complex system, from the point of view of adaptation. It is also the most satisfying, the most nourishing – because it creates, at each step, something that makes us – the makers – feel more wholesome, something that makes us feel alive while we are doing it. It is nourishing, it is fun, it is productive, it is efficient. And, of course – best of all – a similar healing effect also takes place in the whole. (Alexander, 2002b, 569)

Failure best describes my attempts to design the archway. The sketches below (figure 15) show that I could not achieve a shape that was pleasing and welcoming. The cardboard mock-ups were worse. Ultimately, after several days and many experiments, Sophia walked up to the paper we had positioned around the opening and, with a wide pencil, sketched the opening. We mocked it up and then built it. Through awareness of the deep feeling in response to each experiment, the bed alcove was generated; not exactly the original design but something with similar qualities that was impossible to imagine in its entirety from the beginning. This illustrates the emergent quality of Christopher Alexander's methods and the ability to heal the maker. We experienced immense joy and our hearts sprang open when these pieces were installed and the bed alcove opening was complete. The process of making something with life for my daughter helped release the Well of Grief.

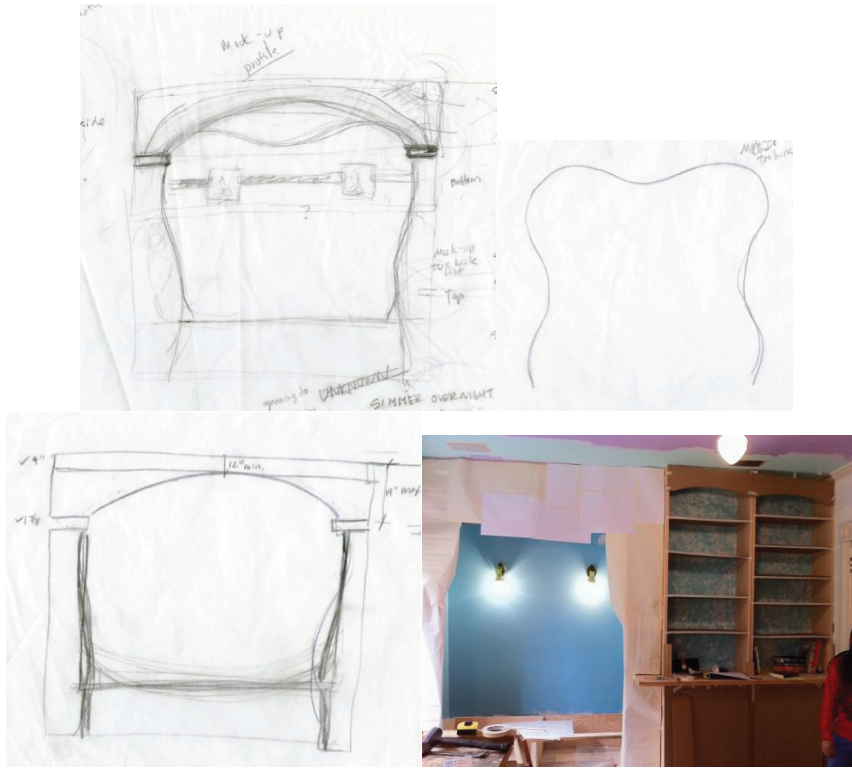

Figure 15: Many attempts to understand the best shape of the arch.

MAKING WHOLENESS HEALS THE MAKER

What I discovered in the unfolding building process is that humility, patience, trust, and openness aid oneself in making. We worked day after day to transform Sophia's room as a place for her to expand her interests and knowledge, and find comfort and solace in her own space. Gradually, joy and happiness began to awaken my heart and senses. I forgave myself and released the fragile and very sad emotions I had held onto in the wake of my family crisis and the loss of my father. Through the act of making the bed alcove, new feelings arose within me that allowed me to overcome my loss. In other words, the emotional space of my grief was liberated through the act of making and my harmonious feelings became embedded in the bed alcove.

In the creation of her bedroom, Sophia was involved in all details from choosing paint colors to testing the bookcase mock-ups and, most importantly, she found the *good shape* of the bed alcove opening that made the entire built-in

come to life. Over the years, Sophia's friends have expressed their awe and pleasure at playing, sleeping or lounging in the bed alcove.

"I really like your bed."

"I feel like the alcove is held, nurturing, protecting, welcoming and warm. The curving of the bed frame is warm and welcoming. The curve of the ceiling creates a little space."

"Can I sleep in your bed?"

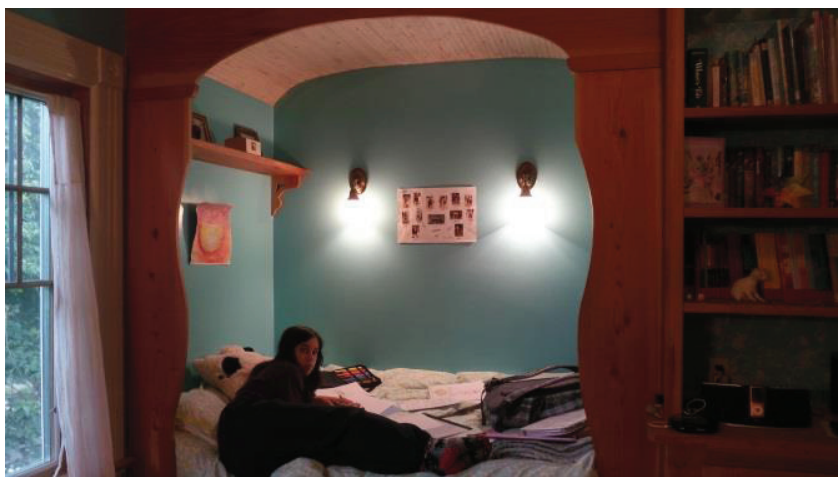

Figure 16: Homework

Conclusion: My Work as a Designer

My focus as a designer is to make wholeness in the world as a healer. I work in the realm of subtle energy to restore harmony in the physical and emotional realms through spatial design and place-making. I bring the life force into matter. This simple example of making built-in furniture for my daughter provides a window into the generative processes that I have been exploring over the last 20 years.

My design work at autopoiesis, llc has been an exercise of designing in harmony with living systems. As a company we work in whole systems design, recognizing that the universe is a living system and there is no "away." Every design decision has an impact that can be supportive or destructive to life. We have consulted on numerous projects in varying fields such as ecological forestry, Classical Chinese Medicine and regenerative economics. Over time we began to recognize the overarching patterns of disharmony and broken systems. We began seeing the opportunity to transform broken, inefficient or failed systems through

design in the living world. *The Nature of Order* is a framework that provides a step-by-step iterative process that is reflexive and requires the designer to use their intuition to feel and sense in response to how a design move affects the whole. This generative process must be connected to the living structure of the world to have life and harmony and to heal. Training and teaching with Christopher Alexander, I learned to trust my inner knowing and rely on my senses, to meet my clients in this generative place of transformation for themselves and their environments.

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ABOUT THE AUTHOR

Kathryn Langstaff co-founded autopoiesis, llc to bring design, the making of things, and organizational processes such as strategic plans, real estate finance, education, and planning to harmony with life. She has been working at the intersection of culture, ecology, wellness, and transformation. Health and wellbeing, ecological design, complexity literacy, and design thinking are at the heart of her work and teaching. Working and teaching with Christopher Alexander has been a life-changing opportunity to find truth, beauty and

wholeness in her life, in each other and in the world around her. Kathryn is trained in qigong and spacial dynamics which compliment her understanding of healing processes. She delights in working with communities, designing wellness centers and generating transformational healing, including creating new forms of business that bring wholeness and life into the world. She pioneered eco-literacy with Sim Van der Ryn at the Ecological Design Institute. With her husband and partner, Stuart Cowan, she has worked on new forms of economics for catalyzing a sustainable world in harmony with living systems. Kathryn is blessed to be the mother of a loving, graceful and passionate daughter. She is grateful to Mike Hoffman, her many teachers and colleagues, to her family, and to her ancestors. She resides in the Pacific Northwest and calls the Columbia River Watershed "home."