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IN BIOLOGY AND MEDICINE

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# PERSPECTIVES

IN BIOLOGY  
AND MEDICINE



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# PERSPECTIVES IN BIOLOGY AND MEDICINE

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**SPECIAL SECTION: "THE VISIBLE SKELETON SERIES":  
THE ART OF LAURA FERGUSON**

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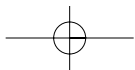
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*Special Section*

**“THE VISIBLE SKELETON  
SERIES”**

*the art of Laura Ferguson*

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**EDITED BY ALICE DOMURAT DREGER\***

**ABSTRACT** Laura Ferguson’s *The Visible Skeleton Series* constitutes an artistic self-representation of scoliosis. Ferguson employs high-tech medical imaging and innovative graphical techniques to suggest a novel view of her skeletal “deformity.” This section presents introductions to the series by a historian of medicine and by the artist herself, and offers personal and professional reflections on the work from an orthopedic surgeon, a social worker with lived experience of cleft lip, and a retired pediatric forensic pathologist.

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Editor’s Note: *The Visible Skeleton Series* will be on display at the National Museum of Health and Medicine in Washington, D.C., from May 2004 through April 2005. In addition to the paintings, the exhibition will feature anatomical source materials from the Armed Forces Institute of Pathology, providing viewers a unique opportunity for gaining a deeper visual understanding of scoliosis and spinal deformity.

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ALICE DOMURAT DREGER

**SEEING YOURSELF***Alice Domurat Dreger*

When I read work-related materials right before bed, my head doesn't get enough rest, so I often settle in for the night with one of our well-worn books of comic strips—*Doonesbury*, *The Far Side*, and the like. One night a couple of weeks ago I picked up a treasury of *Calvin and Hobbes* (Watterson 1992), but on this particular pass, I got no relief, because I came across a four-panel ditty that brought me right back to thinking about my work. In the first three boxes, the parents of the ever-mischievous boy Calvin are seen smiling, walking through their neighborhood in winter, admiring unremarkable snowmen. In the fourth panel Calvin's father turns to his wife and says, "You can always tell when you get to *our* house." The joke in the panel is visual: Calvin's parents have suddenly come upon a snowman with two heads, obviously built by Calvin to horrify.

I just finished writing a book about people who are conjoined twins (Dreger 2004), and so as soon as I saw this strip I started wondering about what Abigail and Brittany Hensel might think and feel if they came across it. Abigail and Brittany, who are now young teenagers living somewhere in the northern Midwest, look a lot like Calvin's snowman; they are conjoined in such a way as to look like there are two heads on one body. I've often wondered, similarly, what the Hensel sisters might think and feel about Zack and Wheezie, conjoined twin dragons featured on the PBS children's animated series, *Dragon-Tales*. It's not that I'm having a "politically correct" moment. I'm not interested in insisting that artists be prohibited from equating profound anatomical differences with horror, or even in insisting that they get their biology right (conjoined siblings can't be of different sexes, as Zack and Wheezie are). I'm interested instead in thinking about what it must be like to know that your body type is very rare, and then to come upon artistic representations of it.

I have some sense that, if the representation is a relatively positive one (un-Calvinesque, if you will), such an encounter can be truly liberating. I've worked for eight years with people born with intersex conditions—people who in the past would have been labeled hermaphroditic—so I know that many of them felt relief, joy, even a pleasurable thrill when they came unwittingly upon the elegant, seductive classical sculpture at the Louvre of the Hermaphrodite. Just knowing there was an alternative to the medicalized, pathological, dehumanizing images of their conditions sowed seeds of radicalism. It isn't a coincidence that the first "Hermaphrodites with Attitude" T-shirt sold by the Intersex Society of North America featured a sketch of the Louvre's statue. To put it mildly, modern-day medical textbooks on intersex offered no such empowering images. Medical images of people with unusual anatomies typically represent their sub-

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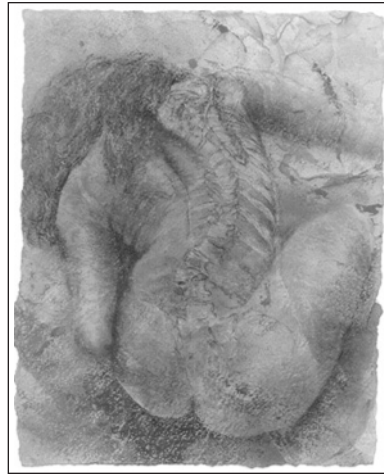


FIGURE 1

*Crouching Figure with Visible Skeleton*

© 2004 BY LAURA FERGUSON

jects as what April Herndon (2003) has called “bodies in waiting”—in this case, bodies waiting for surgical “reconstruction” to “restore” what is understood to be a necessary normal. The typical before-and-after pictures of surgery textbooks make this even more clear.

*The Visible Skeleton Series* constitutes a whole other layer of possibility: what can happen when an artist with an usual anatomy engages in a dialogue with medical representations to represent herself. As she explains in her introduction, Laura Ferguson centers this work around her experience of scoliosis. Though not all of the pieces in the series explicitly refer to her twisted spine, all focus on the meaning of her structural dis/array. Some seem to suggest a particular understanding of her unusual anatomy—they suggest, for example, resounding pain, or ethereal grace. Others seem simply to acknowledge her unusual anatomy, to document it, to give it a reality it would otherwise not have outside of her now-HIPPA-ed charts. Speaking to the central theme of the series, *Crouching Figure with Visible Skeleton* (Figure 1) externalizes her sharply-curved spine, literally bringing to the surface of her body that which is necessarily prominent in her being—but that which is normally invisible and therefore, at some level, unspeakable. Even those artworks in the series that do not show bone-on-flesh give voice to the bones; *Turning Pelvis/Sacrum/Lumbar Vertebrae* (Figure 2) and *Lumbar Vertebrae, Anterior View* (Figure 3) seem at first to be excellent sketches of revealed bone—really good medical imaging—but then the viewer realizes they are more: self-representations of the lumbering frame of the person, images that at once speak of both delicate beauty and the crushing pain of one’s materiality gone awry.

**ALICE DOMURAT DREGER**

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By contrast, most public representations of people with unusual anatomy—particularly the docudramas presented on television and magazines, sugary pieces masquerading as news—are designed to elicit two reactions: unreflective pity or unreflective admiration. In fact, usually the admiration is a hasty window-dressing to cover up the pity, and both of these responses clearly mark the subject as “other,” as “not me” (with an added, whispered, “thank goodness!”). These responses also explicitly mark us as benevolent. So everyone seems to come out smelling good. Except they don’t, really. I’ve learned from talking with many people who have unusual anatomies that they get tired of being used as tools for the establishment of other people’s identities.

In this sense, I think Ferguson’s work is really different. It is different because a lot of people who encounter it without much context just don’t know what to make of it at first; they aren’t sure what they’re seeing, so they can’t go into the automatic script of pity-and/or-admiration. My mate and I have a print of *Crouching Figure with Visible Skeleton* hanging prominently in our home, and people who have seen it without many reference points blurt out the most interesting questions. They ask: Why is the skeleton *there*? (Can you really have your skeleton on the outside, like a lobster?) What’s going on? (Why does she look so beautiful and so wrong at the same time?) And: Is that *erotic*? (That fabulous curve on a woman! That flowing hair.) The disorientation works to delay that rapid-fire, virtually invisible role clarification that happens in most human encounters, where the gender and race and age and relative power (and, and, and) of both parties are usually quickly established. The lovely, lingering disorientation Ferguson’s art causes reminds me of that old chemistry professor joke: if you’re not part of the solution, you’re part of the precipitate. Ferguson’s art induces a bucketful of precipitate. No re-solution here.

That is, unless you’re medically trained and know right away that what you’re seeing is scoliosis. Physicians who come to our house typically take one look at the print of *Crouching Figure* and say “That’s impressive!” They don’t mean the artistry; it takes them a minute to get beyond the shocking spinal deformity to see the masterful artwork. Physicians looking at the print often first see horror, the same way the viewer of Calvin’s two-headed-snowman strip is supposed to. It isn’t that these professionals are inhumane, or narrow-minded, or philistine. On the contrary, they’re just good at what they do. They’re trained to alleviate suffering, and so their radar is up for just that. I remember watching my mate, going through medical school, developing this weird doctor-radar. We’d be walking down the street and he’d be diagnosing various strangers’ neurological and mental disorders by watching their movements.

But because Ferguson’s work—though based on, and even inspired by, X-rays and CTs and MRIs—is *not* the standard medical representation, it pushes many physicians beyond the suffer-scan. There is possibility in the tension and conflict the viewer feels in response to this work, as Cassandra Aspinall, a woman with personal and professional experience of cleft lip, notes in her essay here. As As-

## SPECIAL SECTION: "THE VISIBLE SKELETON SERIES"



FIGURE 2

*Turning Pelvis/Sacrum/Lumbar Vertebrae*

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pinally suggests, *The Visible Skeleton Series* lets the physician-viewer know that the patient who sees her radiological self is not left externally unchanged by that vision. After encountering the art, many physicians may pause and wonder explicitly, as spine surgeon David Polly does in his essay here, “what all this means to myself.” Though Polly is clearly moved to offer an intervention (an offer not intentionally solicited by me as editor or by Ferguson as artist/subject, by the way), he like other medical doctors also begins to articulate weighty assumptions about meaning. Polly voices his concern over the “injustice” of the situation, hinting at the surgeon’s understanding of his profoundly *moral* role in surgical “correction.” These are the assumptions that often go completely unspoken and that therefore usually stand as unquestionable.

Ferguson’s work also opens the possibility of confession of attraction to that which we are supposed to see simply as ugly pathology. Bruce Beckwith—retired pathologist, active historian of teratology, and author of the last reflective essay in this collection—admitted this when he wrote to me: “I was so affected by seeing the work of Laura Ferguson. . . . She is able to express the inherently dichotomous nature of disease as something both lovely and horrific, in a way that a pathologist might wish to do if we were not inhibited by public perceptions.” Medical care providers are supposed to act, according to cultural mythology, as though they are simply repulsed by pathogens, by diseased tissues, by malformation. They

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**ALICE DOMURAT DREGER**


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are supposed to pretend they would all be quite happy to become carpenters and accountants if all morbidity and mortality suddenly evaporated. They are supposed to deny any pleasure they feel in the tango with the fragility of flesh.

Yet as Beckwith suggests, Ferguson's art acts as a sort of confessional box, and in this sense provides the hope of speaking of pleasures we have been told are sinful. The truth is, many people with unusual anatomies do not see their "deformities" as simple yokes of oppression. Many see in their "differences," as Ferguson does firsthand (and Beckwith does secondhand), an inexplicable venue for individuality and self-expression, even a certain—though forbidden—beauty. They see how their whole flesh, their whole selves, may be wrapped around and hung upon the very bits others long to relieve them of. Ferguson hints in her art not only how her scoliosis *affects* her sexuality, but how it *effects* it. Consider the hand of the other in *Standing Couple with Visible Skeleton* (Figure 4): the hand of a partner strokes the artist's scoliotic back in a way that is truly com-*passionate* (with passion). *Stretching/Kneeling Figure with Visible Skeleton* (Figure 5) similarly makes visible what is otherwise invisible—the interweaving of disability and sexuality. We see in this image not only the usually hidden turned ribcage and pelvis, but also the usually hidden full breast with erect nipple. The subject appears gracefully stretched—as if a master of movement engaged in a nearly impossible yoga. In this sense, Ferguson's work makes almost impossible the simple pity-or-admiration reaction to a person with a unusual body or disability. In suspending the moment of identity-resolution, we as viewers find *ourselves* the bodies in waiting. *The Visible Skeleton Series* provides a radical re-presentation of an unusual anatomy, one that exists not for the establishment of others' identities—though some may manage to use it for that—but for the very opposite, for the unbalancing of viewers' identities even as Ferguson uses the art to balance herself.

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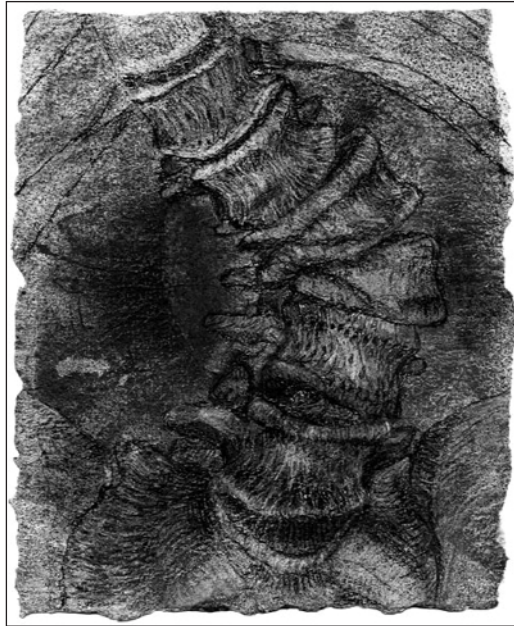


FIGURE 3

*Lumbar Vertebrae, Anterior View*

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**"THE VISIBLE SKELETON SERIES":  
ARTIST'S INTRODUCTION**
*Laura Ferguson*

*The Visible Skeleton Series* explores my own body and its anatomy, as well as the interaction of medicine and art. The multi-layered works on paper that make up this series are based on medical images of my skeleton, including a 3D spiral CT scan, made in collaboration with radiologists and orthopedists. To produce these images, I use an original technique. Thinned oil paints, blended with bronze powders, are floated on water, where they form crystalline networks of color. The dense drops spread out as if magnified under a microscope, echoing the cellular forms of nature. Then I lay paper onto the water's surface and transfer the floating image, and this process is repeated many times with successive colors. Later, I work over these under-layers with drawing media: charcoal, colored pencil, pastel and oil crayon. The resulting figurative images seem to take their form from the bones and blood and veins of the body's interior.

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**LAURA FERGUSON**

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I have scoliosis, a deformity of the spine. My body's asymmetry creates the need for a subtle effort of balancing, in my physical relationship to gravity and space, as well as in my psychic sense of centeredness and wholeness. The conscious awareness of walking, moving, breathing—bodily processes that usually unfold by themselves—has made me attuned to my bones and muscles, nerves and senses, like a dancer. Drawing my body, I focus on this heightened awareness and transform it into visual imagery.

Making this work has been a “learning-through-drawing” process. It has given me a deepened visual understanding of my own body and a connection to that which is unique in each individual. Together, the drawings that form *The Visible Skeleton Series* tell the story of my journey and how I transformed my body's experiences into art.

My project began almost 20 years ago, when I started to experience physical disability related to my scoliosis and felt the need to understand what was happening to my body. Because I am an artist and tend to think in visual terms, I needed to be able to picture what my scoliotic spine looked like. As I began to learn about anatomy, I realized that the imagery was quite visually compelling and could be interesting on many levels, from the literal to the metaphorical. I decided to undertake an artistic inquiry into scoliosis. I would use my artist's duality: living through the experience and at the same time observing it and turning it into art.

I began my learning-through-drawing process of imaginative visualization by observing and photographing my body, learning to recognize the landmarks where the skeleton and muscles are apparent beneath the surface of the skin, and contrasting this outer view with my X-rays. I retrieved and studied the records of the spinal fusion surgery I had undergone at age 13 (a fusion of the T5-12 vertebrae, with grafted bone, followed by a year in a plaster body cast).

Seeking a deeper and more holistic understanding of anatomy than the traditional art school approach, I studied kinesthetic anatomy and the physiology of motion with Irene Dowd, a noted teacher and trainer of dancers (at the Juilliard School and elsewhere). Her approach is to focus on the neuromuscular dynamics of the body in motion, and she helped me to analyze the subtleties of my own range of motion. I also was privileged to be given access to the Anatomy Lab at the Weill Medical College of Cornell University, where I spent many hours drawing from the skeletons.

At first I used my own X-rays as the basis for my drawings. Later I consulted with several orthopedic surgeons and radiologists for information and help in having medical images made specifically for the purpose of making art. Thanks to Dr. Andrew Litt and Phillip Berman at NYU Medical Center, I was able to have a 3D spiral CT scan, an exciting new technology that allows me to view my skeleton from any angle, rotating and tilting it to match whatever movement or pose I'm interested in drawing.

Creating images of my body that are anatomically accurate, but also personal,

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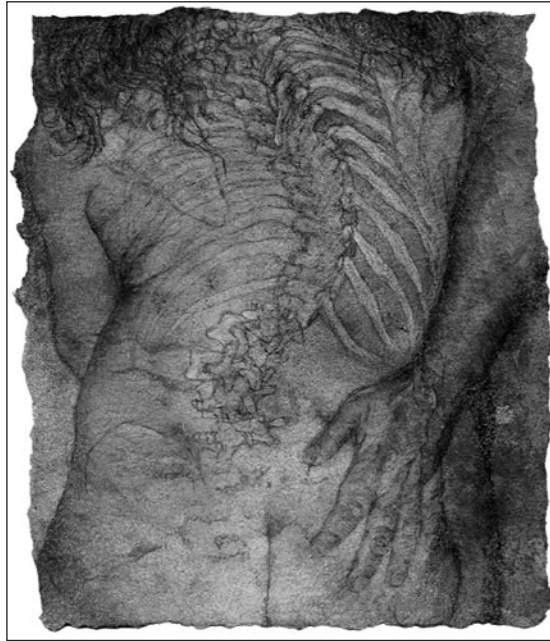


FIGURE 4

*Standing Couple with Visible Skeleton*

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has felt empowering, as if I were regaining a sense of ownership of my own body that had somehow been lost when my experience was “medicalized.” The more I understood and internalized the configurations of my unusual body, the more graceful and comfortable I felt in my skin and the more manageable my pain and disability have become.

The medical literature commonly refers to the “ugly rib hump” of scoliosis, and one of the major reasons for spinal fusion surgery is “cosmetic.” But I wanted to portray it as having its own more complex beauty, one that viewed deformity as differentness, and differentness as individuality. My own unusual anatomy has made me aware that all of our bodies are as individualized inside as outside—and that each has its own potential for grace and beauty.

As *The Visible Skeleton Series* has gained attention in the past few years, via exhibitions and the Internet ([www.lauraferguson.net](http://www.lauraferguson.net)), it has generated powerful responses from people who tell me they have never seen images of bodies like theirs before. These are some of their moving comments:

I have severe scoliosis. . . . I was surprised by how much emotion I felt looking at your work. It could be me in those pictures—even down to the hair. Instead of feeling sad about how I look, I felt really beautiful and graceful and I wanted to thank you for that.

**LAURA FERGUSON**

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I want you to know that your work has made me aware of so many new feelings, although paralyzed and not an art connoisseur. . . . you have helped me have a better perception of my own body.

I have to tell you how deeply exciting and beautiful I find your work. My right arm and leg were amputated two years ago, and I'm just now developing a friendly relationship with my body. You have helped me feel beautiful.

Coming to terms with disability, illness, or an unusual anatomy brings the need to fashion a new relationship to one's body and of one's body to the world: a redesigning of the self, a desire to accept one's own different body, and to be accepted by others, as a full human being with a sensual/sexual nature. Art can be a transformational strategy: the making, or viewing, of something whole, beautiful, visually compelling, enables us to feel wholeness and beauty in ourselves. This can bring an openness to alternate possible ways of healing, beyond medicine's tendency to look for a fix or a cure.

The embrace of my work by the orthopedic surgeon community has surprised me. After years of difficult relationships with the members of that profession as a patient, coming to know them as an artist has given me a different point of view. I see their true desire to help their patients, and their wish to understand, to gain insights into how it feels to be inhabiting such an unusual—or as they often describe it, “afflicted”—body. I see that surgery is their form of artistry, the creative expression of their need to transform and heal. But I hope they can go beyond that: to look with openness at what is, before deciding whether to change or fix it—to understand, as Dr. David Polly writes here, “that life has pain . . . and beauty.”

To make this work, to play the dual roles of artist and model, I had to develop a kind of detachment that I imagine is similar to a doctor's, to be able to view the painful aspects of my experience in a value-neutral way, something I could learn from only by entering into it, without reservation. How not to love pain, when it was part of myself, born from the skeletal fault line that runs through my body? I came to view pain, like pleasure, as simply a state of body, an intensity of sensation that compels awareness, and that opens me to an awareness of other bodily states: those inner-body states that are at once the most universal yet the most private aspects of being.

It seems to me that if we can get past the complicated feelings of fear and guilt that pain—especially another's pain—engender, deeper layers of experience are made visible, and we get to a state of openness in which true empathy and human connection can occur.

## SPECIAL SECTION: "THE VISIBLE SKELETON SERIES"



FIGURE 5

*Stretching/Kneeling Figure with Visible Skeleton*

© 2004 BY LAURA FERGUSON

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## THE SCAFFOLDING OF THE SELF

*Cassandra Aspinall*

When you tell people you are looking “within” to find answers about yourself, they usually assume that you are embarking along an emotional or spiritual path. But there are more concrete ways to take a look inside: various medical tests, treatments, and procedures. For those of us with chronic conditions, acquired or congenital, this opportunity is routinely available—even to some extent required.

The artwork created by Laura Ferguson in *The Visible Skeleton Series* melds the reality and the emotions of how seeing inside one’s body can affect one’s soul. Because of my personal and professional background, my impressions of her work are complex. I was born 44 years ago with a two-sided cleft of my lip and upper gumline. I have two scars on my lip up through each nostril. My face is described with that politely vague euphemism: “different.” Because I was born missing several upper teeth I got a permanent dental bridge at the age of 11. I am also the mother of three sons, and my youngest, who is now 10 years old, was born with a one-sided cleft of the lip, his gumline and palate also affected.

Professionally, I have been a clinical social worker since 1988 on a large multi-

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**CASSANDRA ASPINALL**

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disciplinary medical surgical team at a pediatric hospital. My job is to help children and families through the process of discovery and treatment of all types of craniofacial anomalies. These diagnoses may be simple and affect only part of the face, or they may have influenced the growth and development of the entire skull and other parts of the body. I meet with patients and families over long periods of time. I may first meet with parents when the mother is pregnant if a problem has been detected on ultrasound. I sometimes have the opportunity to work with children I meet in infancy until they are young adults. Occasionally I work with other adults who have children with problems like their own.

Like Laura Ferguson, I sketch my self here as much for your benefit as for my own. Like Ferguson, I seek to understand and represent what my exterior and interior lives have to do with each other. I do this because I know that your image of your insides affects intimately how you make decisions, including decisions about es have the opportunity to work with children I meet in infancy until they are young adults. Occasionally I work with other adults who have children with problems like their own.

Like Laura Ferguson, I sketch my self here as much for your benefit as for my own. Like Ferguson, I seek to understand and represent what my exterior and interior lives have to do with each other. I do this because I know that your image of your insides affects intimately how you make decisions, including decisions about surgery. It is therefore very important that the impact of such images—"raw" X-rays and refined self-portraits like Ferguson's—and their interpretations not be discounted. Reflective reactions to Ferguson's work are the first indication I have seen that those who do not share our experiences may be able to gain some understanding of how such an experience of interior-exterior "difference" feels; but they will be able to understand it only if they are willing to take the time to emotionally experience this art—to take it in, so to speak.

The fact is that routine radiological encounters can lead to very important impressions on the part of the patient and family, even when the clinicians see nothing impressive. I know that because here is how many of my days unfold: I'm in our busy clinic and I am listening to the words of children, families, and medical professionals. We are sitting in cramped clinic rooms. Folders of films are laid on exam tables, spread out like family photos on the dining room table.

As these images lie before us, I am aware that the families are in search of ideas about how to make their child look better and answers to why they look different. Most of the time the child has the same goal. The child and her parents have often spent considerable time looking at the child's face, head, and neck, across the dinner table, in the mirror, from many angles. They may also have received comments from friends and neighbors. "When do you think the doctors can straighten that out?" "Isn't her face too flat?" "Can't they do something about her jaw?"

When the doctor enters the room, the films are slapped up on the viewing screens. The surgeon looks for the right picture and begins the consultation. "Is

**SPECIAL SECTION: "THE VISIBLE SKELETON SERIES"**

that really my head?" the older children almost always ask. They almost always think of Halloween as the images glow above them. Most of the time they aren't scared, and often they want copies to take home. The surgeon explains where their bones are "malformed." Maybe they have gaps because the bones didn't grow together. Or in some cases the bones should have had lines but they grew together too early. But an orientation to the abnormal is very hard when you had never seen what was normal before. What is normal—common—to the surgeon is just as unfamiliar to this child as her own images. So a dissonance often begins here. The layer of who someone thinks she is becomes overlaid by who the pictures say she is on the inside. Her sense of self is confirmed, denied, or challenged.

The surgeon will continue the lesson by explaining that the skeleton can be thought of as the body's internal framework. Something like a clothes hanger or scaffolding, I sometimes add. Your skin is the "soft tissue envelope" wrapped around this underlying structure. Sometimes you can change the bones to change the way the "envelope" looks. And sometimes you can change the envelope.

Now what? When the picture seen on the viewing screen is congruent with expectations, then typically the lesson is over. This happens, for example, when a suspicious ultrasound leads to more scans that show nothing unusual after all. The result of this kind of interaction is one of relief. There are smiles and handshakes all around.

Congruence between expectations and actual findings can also be reassuring when the scans explain why the external appearance looks unusual. But this message of congruence of interior and exterior feels quite different. There may be a sense of disappointment that someone's worst fears are confirmed and that he is different both above and below the surface. It is this feeling that I see strongly reflected in Ferguson's work. For many families and individual patients, there is a sense of disembodiment in such moments, because the "normal" self that was somehow expecting confirmation doesn't just disappear with the unexpected findings. But it is shaken.

And then there are those times when what is seen on the viewing screen, illuminated from the back with the fluorescent light, provides a radically image different from what was expected. Any sense that you may have had of psychic balance becomes suddenly disrupted. It feels like your calmness and sense of self are shot out of a slingshot or erupted from a volcano. You find yourself in a dark corner across the room. You cannot get your bearings. You must catch your breath and begin to fold into your sense of self what this new information means. You can't imagine that you can do it. The slow rebuilding process involves gaining an understanding about whether or not these new images have really changed who you are.

Like Laura Ferguson, I look "different" from the outside because I am different on the inside, and during times when I was in active medical treatment, there were intense attempts—by experts, by my parents, by myself—to understand me from within. Sometimes that meant understanding my bones, sometimes it meant understanding my being. Today I watch again and again as children and parents

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**CASSANDRA ASPINALL**

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go through this process, throughout the developmental continuum. I know that attempts are made on many levels to help sort out the meaning of difference. In my own situation I feel that there have been many times when I feel that I am a swarming mix of what you think you see but what you cannot understand.

I believe that you can gain insight into this struggle by viewing the work in *The Visible Skeleton Series*. I urge you to try and focus on any sense of conflict or tension that you may experience during your time with this art. Focusing on your reactions will lead you to hold in reverence the impact your interpretations can have on others. Stay aware that your impressions of what you *think* you see will inevitably build, destroy, or join with an individual's emerging sense of self and her ongoing attempts to reconcile her interior with her exterior.

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## REACHING WITHIN

*David W. Polly, Jr.*

As I watched a young teenage girl at the airport, I noticed that she had an underdeveloped thumb, though otherwise she was quite attractive and normal. She was adept at hiding her thumb from general public viewing. A learned behavior, learned perhaps from looks, frowns, questions. And I find myself wondering, did this thumb destroy her sense of self, of worth? Or did it make her stronger instead? Perhaps that knowledge—that the look can bring strength, even when the look is a frown—motivates Ferguson's portrayal of self with functional abnormality and anatomical ugliness made visible. The breakthrough of Ferguson's art is the depiction of the beauty of her parts and her person in spite of this horrible condition. It leads me to wonder what is beauty in a person.

I find myself wondering this from two perspectives: first simply as a person, and second as a spine surgeon. When I look at Ferguson's art simply as another person, I see external beauty, but there is also internal abnormality and ugliness. The images depict beautiful surfaces and curves and "normalcy," but the transparent nature of the skin reveals something sinister beneath the surface. What is this sinister thing? Is it simply abnormality or ugliness, and does it reach the threshold to make the whole person sinister or ugly? It seems not, and so I find myself wondering, then, whether this thing is *her* problem, or *my* problem.

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**SPECIAL SECTION: "THE VISIBLE SKELETON SERIES"**

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Perhaps it bothers me because it looks like pain incarnate, perhaps because it could be inside of me, or someone I love.

Then, as I look at this work as a scoliosis specialist, I perceive this art differently: I see it is an excellent two-dimensional depiction of the three-dimensional deformity. It is accurate, precise, and compelling. As I look, my mind races through a classification scheme based on these core questions of my craft. Pain, no pain? (I see many adults with nearly normal spines by X-rays who have pain, so I cannot presume pain but I certainly suspect it. How could the arthritic facets not be painful?) Progression, no progression? In need of treatment now? Fixable? My mind devises the exposure, the bony resection, the placement of instrumentation, the realignment of the spine to achieve appropriate spinal balance in the coronal and sagittal planes. I operate with my eyes, knowing the curve offends me because it is not right, not what this person needs, not what she deserves. Now it seems a matter of injustice, something I can help right.

But even as my mind works through the surgery, the way the spine is depicted in the painting throws me off. There is skin on what I see as an X-ray, added surfaces that depict beauty, normal activity, normal motion. This moves me beyond the technical spinal analysis and to the analysis of the person. The questions change. How is she doing? Is she happy—happy with her function, happy with her life? Who cared for her previously? Did they know what they were doing? Did they do it well? Could I have done as well? When was she treated, and what technology was available?

And with this turn from the technical to the person herself, I find myself wondering again about what all this means to myself. Will this patient like me? Will she be willing to trust me with her spine and with her life, as I make my efforts to better her life?

In the end, I am left somewhat emotionally spent by the encounter with the art. I have felt the exhilaration of the technical challenge—the thrill of operating with my eyes and mind, seeing through flesh right to the bone. I find myself thinking of patients whom I have helped, who ask me later, why did they wait so long? But looking at that body, the beauty, the motion, I think too of the patients whom I have hurt—even though everything went technically right—the blood clot that went to the lungs, the nerve damage from the curve correction, the worsened pain. All I can do now is hurt for them, hurt with them.

I find myself raging, that age-old surgical battle: should I try? It is easy to say no, to do nothing. Do I have the strength to continue to say "Yes, I will try"? Do I have the strength to fight to get the approval from the insurer, to fight with the hospital because the implants are so expensive, to educate the patient and the family about the enormity of the undertaking? This is my professional life, it is who I am, it is what I do. Maybe the case will go well. Yes, I have decided—I will try to help—because I think she would understand why she has put skin and flesh on the twisted bone. She understands that life has pain. And beauty.

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**J. BRUCE BECKWITH**

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**COLLECTING ONESELF***J. Bruce Beckwith*

Laura Ferguson's beautiful but disturbing exposition of her deformed anatomy evokes emotional reactions that are conditioned by the life experience of the viewer. What follows are the reactions of a pathologist who has spent much of his career dissecting the bodies of more than 6,000 individuals, most of whom were infants and children. A life immersed in the tragedy of premature death has been a scarifying experience, but like disease itself, it has also revealed unexpected oases of light and beauty. The lesions responsible for disease and deformity, when viewed in isolation, can sometimes appear beautiful to the trained eye. It is not uncommon for physicians to exclaim about a "beautiful specimen," just as a climatologist might become excited by the "beauty" of a spectacular tornado, disconnecting for the moment from any havoc and personal tragedy it may be causing. On countless occasions I have waxed enthusiastic over a microscopic slide of an interesting or aesthetically pleasing arrangement of cells within a tumor, despite knowing the patient and being all too aware of the emotional and physical agony wrought by those same cells. It is a refreshing experience to see how one image can convey the "beauty" of disease in isolation, without allowing us to forget the awfulness of that disease in situ.

William Osler, one of the greatest physicians of any age, said that "the good physician treats the disease, but the great physician treats the patient." This statement could also be applied to medical art, which usually focuses upon the lesion rather than the patient. Images of disease in textbooks, journals, and lectures are a major tool for the education of all physicians, and these tend to be as devoid of humanity as a distant photograph of the mushroom cloud over Hiroshima. Some images are created to demonstrate the effects of a lesion or disease upon the body, but in these the cause is often not visible. Over the centuries, the link between anatomy and art has been a close and essential symbiosis, enhancing both art and medicine. But few artists have succeeded as well as Laura Ferguson in depicting in a single image both the anatomy of the lesion and its impact upon the patient. Her marvelous figures bring life and emotion into the traditionally cold science of clinical anatomy.

In many of her images, Ferguson's skeleton is exposed through a window of skin and superficial tissues made transparent. Transparent Laura is revealed as a composite of sensitive, sensuous softness conflicted and molded by hard, implacably deforming bone. This technique communicates, more effectively than anything I have seen before, the contrast between the hardness of bone and the

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delicacy of the overlying tissues. It is this contrast in texture, the friction between harder and softer structures, that is the ultimate cause of much of the pain experienced by patients, particularly those with orthopedic problems.

The pathologist in me has other reactions. That horrendous angulation of her lumbar spine, labeled *Lumbar Vertebrae, Anterior View* (Figure 3), evokes a particularly strong response. Those crushed and displaced vertebrae, resembling derailed subway cars or a multiple-car collision, are not depicted using the "transparent woman" technique to communicate pain. Instead, the delicate tracery of red and purple applied to the uppermost three vertebrae reminds us that these are living, sensitive, painful structures we are observing, not the cold white bones of an articulated skeleton or spinal radiograph. That same image also manages to communicate, at least to my eye, a sense of progression over time. The slow, inexorable, and asymmetrical collapse of the second and third lumbar vertebrae reminds me of the folding and deformation of geological strata that one often sees on canyon walls. Hopefully, her physicians will be able to arrest or reverse that process before the collapse causes catastrophic damage to the spinal cord and adjacent nerves.

Having spent much of my life delving into the mysteries that lie within the interior of the trunk, I am accustomed to viewing the body from inside out. In her art, Ferguson presents an outside-in view of herself, which is of course the way most humans expect to be observed. We pathologists have seen the distorting and sometimes disastrous effects of spinal curvature upon the inner organs, especially the heart, aorta, and lungs. As Ferguson's exercise in self-education continues, some of these profound visceral changes internal to the skeleton might be added to this emotional-anatomical atlas of her body.

In contemplating this exhibit, I was reminded of another artist who was challenged and motivated by an orthopedic disaster—in her case a traffic accident with severe spinal damage—to become a great artist. Both Frida Kahlo and Laura Ferguson have responded to their disability through the medium of intense self-exploration expressed through art. They evolved totally different artistic styles, but both concentrate extensively upon self-portrayals. I am not qualified to judge the art of Frida Kahlo, but I respond far more powerfully to the images of Laura Ferguson. I predict that her work will be popular with collectors, but more importantly, that it will help to educate both doctors and patients of the future about the nature and impact of scoliosis. It might also have a beneficial impact upon medical illustration in a more general way, by showing how altered anatomy can be depicted so effectively in the context of the living patient.