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# The Other End of the Cow

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*JUDITH MADEY was a student in the Institute's eleven-week-long spring course on the Goethean approach to science. Each student had an independent observation project. Judith, who worked with the cows at Hawthorne Valley Farm for ten years, chose to observe cows. This essay and the accompanying sketches are among the results of her studies. CH*



Ever since I started working with cows ten years ago, I have been fascinated, intrigued, scared, upset, and amazed by these animals. My relationship to them changed over the years. It went from being frustrated about my inability to have any impact on them, such as when I was trying to convince them to walk out of the barn on cold winter days, to enjoying the quickness and lightness with which they charged down a particular hill if weather and air were just right. Mostly, though, I am filled with wonder every time I see how playfully, yet methodically they feed on grass. Seeing cows graze on a good piece of pasture gives me great joy and satisfaction, and watching them chew their cud has a calming effect on me.

One struggle in my project at The Nature Institute course was to observe an animal that I had worked with so closely for quite some time. Where do you start when it seems like you have seen it all? Luckily, it is quite easy to figure this out when you deal with cows: eating. Once I finally sat down for the first time to watch my young steer (a castrated bull) graze, I was immediately humbled. I realized how much I had superficially assumed and how much I had only read about, but never observed myself. After that initial observation, it was not hard anymore to figure out what to observe, and as I went along, there were more and more questions, not fewer.

The group I was observing consisted of two young animals of my own and ten that came from the farm I had bought mine from. I tried to go out to my little herd almost every day for at least ten minutes. I often took my sketchbook along to make some simple line drawings. Back home, I would at some point during the day take the time to remember what I had seen, painting as clear an inner picture of it as I could. This proved to be a crucial step to gain-

ing any insights and was a fundamental aspect of the goethean approach as taught to us by Craig Holdrege. I then would return the next day to attend to what I had not been able to picture clearly. Often, I would also just soak in the animals in their surroundings and try to do some simple line drawings.

In the whole process of observation and repicturing, I realized that actual insights can't be forced. Instead, they show themselves to us in unexpected moments and are a gift. They appear much like drops of dew on a crisp morning, easily overlooked, but each containing a little gem.

## The Grazing Cow

Cows are not particularly elegant animals. They have nothing of the grace that cats display. They are not affectionate and loyal like dogs. Nor do they have the expressiveness of pigs. They definitely are not nervous like mice scurrying around, nor are they smart like goats. Just looking at them, one would not call them beautiful, at least not compared to a lion or a horse. Everything about them shows weight, heaviness, and downwardness. "A big box on sticks" somebody told me, and in that context, "they are easy to draw." Well, that latter statement made me look twice — cows are actually very hard to draw, as other people have confirmed.

After giving the cows a new piece of pasture (which I did about every four days), they usually were very eager to eat. They would put their head down as soon as they were on the new grass and focus their entire attention toward the activity of carefully selecting the best grasses. Superficially it looks like they are just chomping down the grass indiscriminately, their head moving each time they take a bite. However, I was surprised to see how carefully their

tongue wraps around what they want to eat. If anything they do not like enters the mouth, they immediately work it back out, although this reverse movement is not so easy. The cow usually looks as though she is making funny faces.

The tongue is very active during grazing. It moves out of the mouth, wraps around the grass, and rips it off. The grass enters the mouth and gets swallowed without much chewing. Watching cows eat hay in a barn setting, it looks like a continuous stream of hay is entering the mouth. On pasture, this stream is a bit more interrupted since the cows need to rip off the grass. A quick and subtle, but very clear upward movement of the head assists this movement of ripping. The cows also move along as they graze. They take about three to five bites for every step.

The activity of the nose becomes more pronounced as the grazing continues. As the cow gets less hungry, she spends more time just sniffing. The eyes are directed forward, the ears point to the ground, and the legs move the body along in a rhythm determined by the activity of the tongue. Even the legs seem to “point” forward. On a certain level, the whole cow takes part in the grazing.

Cows make many passes across a field, grazing one area multiple times. It is hard to see a feeding trace after just one pass; it looks as if they have not eaten anything. The cows seem to just bite the tops off for a while. But at some point the whole pasture looks grazed down. I was fascinated by the intricate movement pattern the cows engage in while eating. They hardly ever stand still during grazing and rarely move in a straight line for very long.

The herd moves together to the watering place unless the water is very close. There is a moment in which all of a sudden movement comes into the herd, directed less by the grass than by the need to drink. The grazing continues, but there are more steps between bites. Often salt is taken in at this time.

## The Resting Cow

Often, when I arrived mid-morning or at noon, the cows were lying down. They were usually all near one another — little clusters of two or three animals in close proximity, with bigger distances between clusters. These little clusters often consisted of animals that had been raised together in small groups as calves, while they were still being fed milk.

Resting, the cows still express a heaviness. The head is up, but it leans toward the earth; it is heavy. Smaller animals often curl their heads in toward their bodies or lie stretched out on their sides. Older cows usually lie with

their head up. Finding an older cow stretched out or with her head curled in is usually a sign of illness.

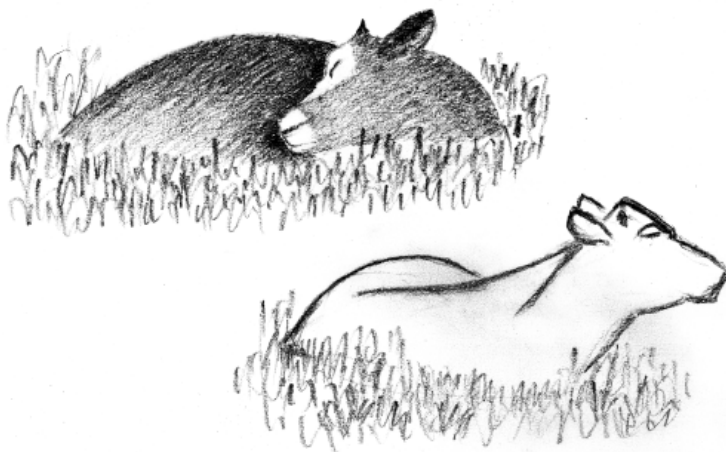
When a cow lies down, it is not a graceful movement. She goes down on her front limbs first, one after the other. Then she folds in her rear legs. About six inches above the ground, she lets herself fall, giving herself over to gravity. It always looks very awkward to me, as if a cow’s legs were not really suited for lying down or getting up.

In pathological conditions, for example after a hard birth, cows may be unable to get up. This is a worrisome time for the farmer because he or she knows only too well that if that cow does not get up soon, she will never get up again. The heavy weight of the body crushes the muscle in the legs. It is quite a job to deal with these animals, since it is not so easy to turn them from side to side to avoid tissue destruction (necroses).

While lying, cows are usually quite alert, which shows in their ear movement. The ears will turn to where a noise comes from. But occasionally, when I found them lying down, I had to call on them a few times to get any reaction. They seemed to be deeply asleep. They seemed a bit embarrassed once they realized how close I had gotten.

They usually chew their cud while lying. One piece is propelled up from the rumen through the throat to the mouth, moving against gravity. Once there, it is subject to sideways chewing. The cow will rechew a bite fifty to sixty times before it goes back down. The next one comes up in no time, and again gets chewed fifty to sixty times.

To get up, a cow pushes up with both its hind legs. Then it puts one front leg down, and then the other. It looks to me as if it is not as much a pushing up of the body as a pushing away of the ground.



## Social Interactions

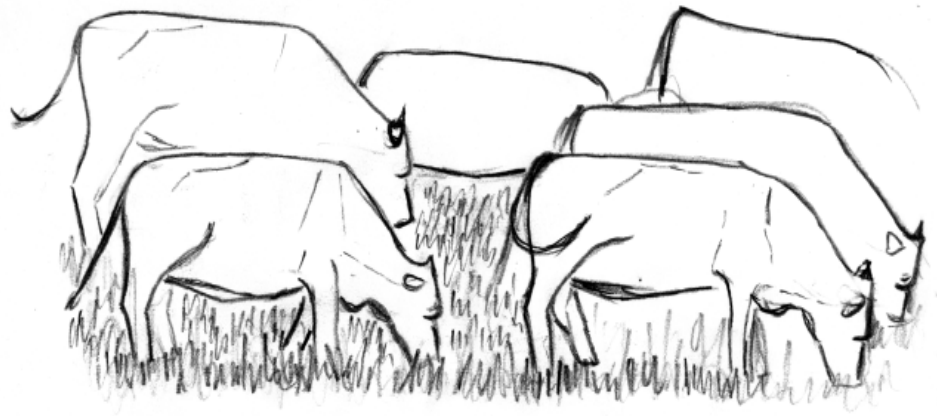
Working with older cows, I had often observed fighting whenever I joined new cows into an existing group, even if earlier the new animals had been part of the herd. There is a clear sequence to the fighting: first two animals approach each other sideways, with heads down. Next they lock heads and push against each other with tremendous force until one gives way and turns around to run away. The other animal chases her for a period of time, never very long. Often, the strongest animal of the existing group picks the first fight, followed by the next strongest one. The weaker ones usually fight the longest.

When I introduced my two steers to the group of heifers that became my little herd, I expected to see this kind of behavior. Some animals definitely fought, but I also watched a lot of mutual licking and moving around together. It took me a while to figure out what was going on. Since both my steers had spent their first four weeks on the farm the heifers came from, they had spent that time together with some of the animals now present. These animals did not fight with each other. Instead they went right back to the formerly established order. They had recognized each other, despite the separation spanning weeks.

The bond of calves that grow up together is a strong one. They tend to graze in close proximity and like to move close together when the whole herd is moving. I have noticed cows getting lost when they came into the barn the first few days after I had shipped off a cow they grew up with.

Once the relationships in my little herd were established and all the animals were used to eating grass as opposed to hay, they became one group, a herd. There is something magical about a herd. Each individual animal moves along its own path or occupies its own space lying down, yet it does not fall out of the context of the herd. Seeing a cow by itself apart from the herd is unusual. In fact as a herds-woman, as soon as I would see an animal by itself, I knew there was trouble. The “trouble” of finding a cow calving was usually a pleasure, finding a cow sick not.

Watching the herd graze, I observed a few times in their movement something similar to what we had studied about the growth of plants: expansion and contraction. The leading animals would walk ahead while the last ones still stayed behind, and the group would become strung out. Then the



back ones would start to close in, bringing everybody along until the group had become much tighter, at which point the leaders started to spread out again.

Much of the interaction between the individual animals happens through mutual licking. In fact, the tongue is part of everything a cow does: she eats by ripping the grass off with her tongue; the tongue moves the cud back and forth during the resting time. A cow licks her calf as soon as it is borne. Older animals interact with each other by licking each other. The bull licks the rear end of a cow to make her urinate so he can smell whether she is in heat. He will lick her around the shoulder blades to settle her down so he can breed her. The rhythm of the cow moving as she grazes is determined by the activity of the tongue.

## Relations to Qualities in the Environment

The cow stands on the ground with its four feet. It feeds from the ground; its head is directed toward the earth when grazing. Its body is big; I often wondered how these thin legs could ever carry such a heavy weight. The rump hangs down; it is wider at the bottom than the top. Even the tail hardly ever goes higher than the back. If it does it is merely in annoyance at the flies. Every thing speaks of weight.

One morning I came early and just knew I had to go watch even though I had a lot of pressing things to do. As I approached the pasture I became aware of two deer grazing in the paddock adjacent to the heifers. As they saw me, their heads went up – way up! How little effort it took those deer to lift their heads! And when they bent back down to graze, it looked like they had to actively put their head down, much more actively than the cows.

For all the heaviness that the cow shows in her body, there is also an expression of a force going the other way: for one,

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the horns grow up. Then, whenever the cow swallows, the food is brought into the rumen against gravity. And when the cow chews her cud, again the food moves against gravity from the rumen to the mouth.

Cows that are not fed minerals and especially salt become lethargic and unresponsive. There was another group of heifers across the road from the ones I was primarily observing. For a while this spring, they seemed to graze aimlessly, there was no coherence to their behavior. I asked the woman who took care of them if they had salt, which prompted her to go get some. When I came back the next morning, I had forgotten about my conversation with her. I was struck by the difference in behavior of the animals, though, and then remembered what we had talked about. The heifers were much more alert, moved more purposefully, and looked up when I came close and interacted with each other again. Salt seems to be important for other ruminants, too, more so than for other species of animals. I do not really worry about feeding my cat or dog any salt, but I definitely think about it when it comes to cows.

The cow takes the salt in with her tongue, carefully licking up small amounts. In between, she licks all around her mouth and will extend her tongue into her nostrils and clean any salt away that might have collected there.

Cows do not like to have wet feet. They would much rather stand on dry ground. In rain, they all turn away from the direction of the rain, arch their backs, huddle together, and wait for better times. A clean water source for the cows to drink from is a very crucial part of keeping them healthy. Lactating cows drink up to thirty gallons of water a day. Cows also develop a tremendous amount of saliva every day, and they circulate many pints of blood to produce one pint of milk.

On hot days, the cow needs to drink water to cool down. She takes the water in through her mouth by suction. The tongue is not as active while drinking as while eating. The water moves through the body and is excreted at the other end. The cow perspires some, but she mainly cools down by drinking and excreting.

From what I have observed, breathing is not developed as strongly in the cow as in a dog, for example. It's something that more or less happens to the cow, not something she takes up as an activity. The big digestive system can easily put weight on the lungs. For this reason, cows would rather stand facing uphill than downhill. In that position, the weight of the digestive organs pushes toward the tail, away from the lungs, and makes breathing easier. Again, the cow lives strongly in gravity.

Cows are also very sensitive to the quality of the air. If the air gets stuffy in a barn, too humid, too warm, the cows will

very quickly get sick. I had a barn full of cows with diarrhea once, and another time I had a pneumonia outbreak, just because the temperature went up over night when I thought it was too cold to leave the fan on. I would rather deal with frozen pipes than sick animals, and so I started running fans more often.

Cows get pneumonia easily if some water gets into their windpipe. They cannot really cough, and they show general distress most strongly in their breathing. They are also very sensitive to wind.

Cows see, but a visual impression usually gets verified by sniffing, or even licking, the object. Depth perception is minimal. Sometimes a cow refuses to go under a fence held high or step over a wire put on the ground. To them, the fence seems to be a vertical plane; as soon as it is out of the way completely, the cow walks through without hesitation.

A change overnight in a visual appearance can affect cows strongly. I have experienced the whole herd being turned around by the lead cow because the neighbor put a tablecloth on a table where there had been no tablecloth for weeks before. The same neighbor hung out some laundry after the cows went out. On their way in, some of them spooked and I literally had to take down the pants hanging there to get them to the barn. Anything dark, especially black, makes them hesitate to walk by. The sense of sight is not as refined as the sense of smell and taste. The fact that anything new takes a long time to get used to again suggests heaviness. Dealing with cows, I really learned to slow down. It just does not help to hurry and force them.

Cows have another, more indirect but essential relation to air and light: I mean their relation to grasses. The short description of grasses that follows does not do justice to them, but may at least hint at the relation to air and light I sense.

Grass has long, narrow, blade-like leaves that do not really unfold. Looking at them, one can see that at least half the leaf stays rolled up around the stem. Grasses show amazing strength in holding their stem upright. The flower emerges through the stem. One can find it fully formed early on if one carefully slits the stem open in the middle of May. The flower is nothing spectacular at first sight. There is not much color, the flowers are small and inconspicuous. The plant seems to be all about stem.

Grasses rarely grow alone; they form a strong community and cover a lot of ground. By the way they grow, they allow other plants to grow alongside them: They do not create much shade and often help support other more vine-like plants. Often we find clovers alongside them, but also many other flowering plants.

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Grasses grow up straight to the sun and bloom just before and around St. John's Day (June 24) when the days are longest and the light is strongest. Their pollination happens by the wind, unlike many other plants that are pollinated by insects. It is an amazing sight to see the wind move across a meadow and see the ripples it creates on the many, many grass plants. To me, grasses live in light and air.

When the cow eats grass, she takes into herself the light and air as the grass expresses it. Looked at in this way, the cow takes in air and light through the activity of her tongue and mouth in a manner similar to how she takes in earth and water.

## Conclusion

I don't think I will ever look at a cow the same way as before. We farmers often deal with the rear end of the cow — probably eighty percent of our time is spent milking the udder, scraping manure off the floor of the barn, and taking the manure out. We do feed them, but often the cows are not in the barn when that happens. Often we know a cow better when we see her udder than her face. When I look at cows now, fully knowing the importance of milk and manure, I also see “tongue” — the other end of the cow — as a place where the cow intensively meets the world.