

**Maine Forests are the**

**Guards at the Gate**

**By Peter Hagerty**

**Porter, Maine 2021**

**On the Syrian/Turkish Border, 2004**

**“Doctor, there are solders at the door. They are demanding to enter to see if there are terrorist force in here.”**

**“Salam alkehum, Abrim. Tell them they are welcome but there are dead men piled in here and disease runs through the room. They will not make it home alive if they come in.”**

**The operating surgeon looks out the window at the setting sun and down at his patient who is smiling up at him and says, “Oh, it gives me great pleasure Doctor to find myself at death’s door and be entertained by such acting.”**

**“Listen my friend, they are gone. But you have a ways to go. Inshallah, يدار! دعوتسم, بغار, طوعي“**

**Porter, Maine. Summer 2020**

**It was back in July on one of those hot afternoons with thunder promising to take the fun right out of the day. Only the leafy over story with its welcomed shade kept me from heading home. Every once and a while a stray breeze would visit my spot as I rested under a spreading oak. Other than that, not much was moving.**

**Then about four in the afternoon, I heard a crashing sound coming down the hill as if an animal with a heavy stick was bashing out a path through the undergrowth. As I struggled to my feet, a giant dog bounded to a stop in front of me, dropped a sizeable tree limb from its immense mouth and nonchalantly lay down and scratched its back on the nearby bushes and needles.**

**Any other time might have found me scrambling up a tree in flight. But recently my wife and I had welcomed into our home a rescue dog, easily this size or larger. So I reached out**

my hand and Titus, written in large letters on his collar, began licking away as if there were no tomorrow. But just as I began gathering my tools to head down the hill with my new friend, a second round of crashing seemed to be heading my way. “Not Vespasian I hope?” I muttered out loud to a tall blond man about my age entering my small clearing, trailing a broken halter rope and breathing heavily.

His free hand reached out to a nearby tree to steady his breathing. He looked over at me, and then down at his dog curled at my feet, and said “how do you know about Vespasian?”

“He was the father of Titus,” I replied. “I took Latin in high school”.

He looked over at his dog, then down at the GPS device in his own hand.

“Thank you so much. I have been following him for several miles, in fact for most of the day. Titus is so clever, never crossed a paved road, stayed far away from houses or fields. How do they do that? He came from upstate New York, never been here before. Where was he heading?”

“He was heading here to meet me,” I said, trying not to sound like a smart alack. But my guest had turned away, affectionately scratching Titus’ head.

“What is all this,” he suddenly asked, “these tags on the trees. I started seeing them a ways back but could not stop to examine. Is this your work?”

“My name is Peter,” I announced “and I am practicing social distancing. Normally I would offer you a hand shake but my wife and I have been in quarantine here on our farm since March.”

“Oh, gosh, I am sorry. My name is Bill Wormwood. You might have known of my grandfather Ethan, or my father Frank.”

“Yes I knew Frank, I replied. “I actually bought some land from him just before he died, bringing this farm back to its original size. And your grandfather Ethan is buried just over the hill in the Draius Road Cemetery. But, as to your interest in the tags, I am measuring the carbon these trees are presently capturing and storing. As you may know, trees take the greenhouse gasses out of the air and safely store them in the forest environment. Like that oak you are leaning against, that tree is presently storing 700 lbs. of carbon. But you have come a long way and I am just about finished so why don’t we all head down to the farmhouse, get some refreshments and I can drive you home.”

As we crossed the Ten Mile Brook and headed up towards the barn, Bill slowed his pace and looked around.

“Oh, this is lovely. How long have you lived here?”

**“My wife and I moved here in the winter of 73-74 and were married in that barn the following spring”.**

**A loud barking resounded off the barnyard walls as Weyland, our Bernese Mountain/Lab cross rescue came bounding down the hill to meet us. Titus rolled over on his back like a well-trained guest.**

**“Hello Weyland,” Bill whispered and began rubbing down his long back. “You know, one of my favorite songs is your ‘Me and Bobby McGee”.**

**I suggested that we sit outside in the shade of the barn and I went into the kitchen to get some lemonade. When I returned the dogs were curled up under a bush and Bill was admiring a sheep crook that had been lying against the fence.**

**“We used to have a lot of sheep,” I explained “but now Katie is our last. She must be getting close to twenty.”**

**“Well,” asked Bill, “if you don’t mind my asking, what brought you here and how did you manage to prosper?”**

**“Oh that’s a long story,” I began. “I have always loved working in the forest, especially logging with horses like Willie and Nick over there in the barn. Vietnam helped change my life’s trajectory and my wife and I made this farm our home and place to raise a family. I am recovering from an injury right now and sometimes have trouble focusing. We have been on lock down here since March and it’s been hard limiting my social life. But mostly what I find most challenging is every day watching the forest industry destroying this ecosystem. By the way, do you live far from here?”**

**“I am not sure exactly where I am right now but I live up on Henderson Hill”. I took that information in knowing that there was only one house on Henderson Hill and it was remote and impressive. I had never been there but had heard stories.**

**We finished our lemonade and, donning Covid masks, we piled into the pickup, sat Titus up between us, and left a fore lone Weyland in the barn. The drive ended up being about seven miles, as we needed to circumvent two substantial mountain ranges. The leaf covered sign at the base of Henderson Hill read “Ridge Road” and the path itself was well maintained but clearly not used much. Both sides were flanked by tall red oak now in full leaf, giving one’s way forward a sense of traveling up a long tunnel.**

**“My father was born in the States,” Bill began “but went to college at McGill University in Montreal and worked most of his life for the Canadian timber firm Trois Lacs. I grew up speaking two languages and when it was time for me to see the world I studied at the Sorbonne. But I returned to Johns Hopkins Medical School and became a trauma surgeon. My dad and I were two very different people.”**

The truck climbed a long hill, rounded a bend and entered a clearing several acres in size. There, set in the center of a circular driveway, stood a small house comprised primarily of weathered pine boards, polished stainless steel, and glass, lots of glass. We had come to what appeared to be the top of an impressive mountain, yet the view was obstructed by an almost impenetrable forest. A substantial solar array was set discreetly off to the side and a crystal clear brook ran from the forest to the house ending at a small fish pond. As Titus bounded out of the pickup, a bi-racial teen age girl came running out to greet us.

**[“иди ко мне”](#)** (come to me) , she called in Russian to the dog who came running to her side. I climbed out of the truck and walked over to meet her.

**“Здравствуйте, меня зовут Питер (hello, my name is Peter)”**

**“Привет Питер, меня зовут Катя (hello Peter, my name is Katya)**

**“Так приятно встретиться с вами, Катя, ты из республик Азии?”** (great to meet you Katya, are you perhaps from a Central Asian Republic)

All at once a stunningly beautiful older woman approached. **“We are from Kyrgyzstan,”** she said in perfect English.

**“Bishkek?”** I asked.

**“Yes, you have been to Bishkek?”**

Just then Bill entered the conversation to explain who I was and why I was delivering him and Titus home in my truck.

**“Peter, this is my wife Tatiana and our daughter Katya. I had no idea you were a Russian speaker.”**

**“Oh, I am far from what one might call a Russian speaker but I have spent many happy days, especially in the Tien Shan Mountains and Lac Izzyk-kul.”**

**“Well, please come in to our home. We don’t get many visitors up here. But one tradition we maintain for special Russian speaking guests is kumic.**

**“Oh my God,”** I remembered, **“fermented mare’s milk!”**

**“Do you have a horse you milk up here?”** I asked.

**“No,”** Tatyana laughs, **“that is our dream. We now have to go to New York City to get it and because of the pandemic, it has been difficult. Please do not feel required to sample our milk”.**

The images were as fresh in my mind as if it were yesterday so I chose to share them with Bill's family as we set down outside on a small patio.

“I had taken a job for an NGO training Kyrgyz shepherds how to prepare their fleece for the Western market. I was also looking to buy wool for our own Maine fiber business, Peace Fleece. One day I was riding horse back with my host Akmatov's son at about 18,000 feet in the Tien Shan Mountains. One side was Kirgizia, the other China. As we approached a cluster of yurts, a giant Russian made helicopter suddenly appeared from over the mountains. After landing, a ramp dropped from its tail and an operating room table was wheeled down and into one of the yurts. Moments later it returned with a very pregnant woman on board. Then all was quiet, just the bleating of the distant sheep and the constant wind.”

“Well, Akmatov's son spoke no Russian so I approached one of the uniformed copter crew who was having a smoke. I introduced myself in Russian and when he heard I was American he broke into a smile.”

‘Are you by chance an American soldier?’ he asked in Russian, admiring my Marine Corp issue combat pants. ‘Not any more,’ I replied. “Not since Vietnam. Why are you here today in this helicopter?”

‘These shepherds are our eyes,’ he explained. ‘They look down into China every day. They radio us of any changes we need to know about. It is our duty to support these shepherds, even if it required a mobile OBGYN unit. A while later, the woman was wheeled back out of the plane holding a new born baby girl.’

‘Please, I need to get a camera,’ my new friend announced. And just a moment later history was made on a remote high altitude pasture on the Sino Soviet border with the photo of two soldiers who were once adversaries, shaking hands.

‘Oh look,’ he smiled, ‘here comes babushka with the kumic.’

“And soon we were all standing around a smoky fire drinking a beverage I can only describe as tasting like something that was not totally digested when accidentally burped up.”

Tatyana suddenly burst into laughter. It turned out that she not only knew Bolot Bekov, my guide while in country, but also Jamilya Temerielov from the capitol Bishkek who later came to live here in Maine with us for a year, and also Akmatov's father, a right wing conservative politician whose sheep farm I used as a base.

“Bishkek is a small town,” smiled Tatyana. “It is easy to keep track of everyone. But for now we'll hold off and wait for a very fresh batch of kumic before asking you to sample it.”

One moment I was working in my forest estimating carbon and the next I am on top of a mountain in front of an all glass house speaking a foreign language to people I barely knew.

**I started to become disoriented. Bill noticed my hesitation and suggested a cup of tea. We sat in the shade outside by the stone pool quietly watching brook trout hunt for food.**

**“So Peter, if you are not in a rush, maybe I might explain what might have brought us all here together today.” I nodded as I was eager to learn more about this family.**

**“My father Mike was not an easy or a happy man. All I can think of is that he inherited much of his angst from his own father who I barely knew. My own father was disappointed when I chose medicine for a career. He was a strong Republican, managed his own money and used it to purchase thousands and thousands of acres of forest, much of it here in Maine in this very county. These thousand acres that surrounds our home here are part of this empire. He and I parted ways soon after Johns Hopkins.**

**“I am a trauma surgeon and tend to look at problems from a medical perspective. I worked primarily for international NGO’s. I have been very moved over the years by the multinational responses to human crisis I have seen in places where I have worked. I was in Rwanda in 1994 when 800,000 people were slaughtered. I was in South America in 2003 when the SARS epidemic broke out and then to the war in Afghanistan with the US Marines. My last assignment was on the Syrian border, managing the medical crises in refugee camps there.**

**“What is today occupying my thoughts and conscience is the magnitude of our present climate crisis and how it is far outweighs anything we have yet seen from global warfare. Just this year, 150,000 people have already died from what? Some new disease we name Covid 19? No I don’t think so. That gets us off the hook too fast.**

**“OK, I see Tatyana giving me the eyeball over there. Let me just finish by saying that, thanks to the ruthless money management of my father and Three Lakes Forestry, I now have ownership and oversight to 250,000 acres of land here in the state of Maine alone. Much of it is in these surrounding hills and unorganized territories. Some of Dad’s land you apparently purchased from his estate and for this I am glad. But do you have any suggestions as to what I might do with the remaining forest land to counter in a small way the impending crisis?”**

**It took all my self-control to react appropriately to the question, not because it was amusing but rather because it was so timely.**

**“What do you feel is the root cause of this pandemic?” I asked. Without hesitation he muttered “climate change and global warming.”**

**“I have been a doctor in several war zones, Iraq, East Africa, Afghanistan and Syria. I carried with me to all my surgeries a simple device to measure dangerous on-site air pollution. We would not operate if the air would not allow it, both for the sake of the patient and the medical staff. Last summer my family and I were hiking in Acadia Park in Bar Harbor and I went to get a sweater in the trunk of our car. There sat my Air Tester. I turned it on and guess what? Glad there were no roadside surgeries planned for that day.**

**“The same morning that the news broke of the first Covid hotspot in Hu Nan, China, there appeared on the television satellite photos showing where air quality and pollution globally were the highest? Hu Nan was one of the premier stars. Covid is trying to tell us to clean up our act before we, as humans, destroy life on earth. And we are not listening.” He then bent forward for a cookie and I saw the sweat on his brow.**

**Tatyana poured more tea and sat down next to me. “So this is my part of the story, “ she began.**

**“I met Bill on the Iraqi-Turkish border twenty years ago. Both of us were trauma surgeons and both our countries of origins were cooperatively working to bring an end to these religious or political hostilities. I am from Kyrgyzia but studied medicine in Moscow and Leningrad. Bill was sixty and I was forty five when we met. Neither of us had been married before and both had seen our share of trauma. It was love at first sight. Peter, we look forward to meeting your wife and children. We know almost no one in the area as we have been here full time only for a few months.”**

**“I assure you Tatyana,” I broke in “that my wife and our extended family will be most pleased to meet you all.”**

**“Katya,” I then asked across the table, “how is your English?”**

**“Oh it is fine. I have been going to schools in Ireland, Iceland and California, countries where my parents have been teaching. But we speak Russian at home to keep dad up to speed. In fact I am signed up to start at Sacopee High in a few weeks but, of course, that will depend on a lot of things.”**

**“Katya, the reason I ask is that, just before the pandemic arrived, I had been working with a small group of students about your age to better understand the role that the forests play in our well-being, both physically and spiritually. I have been privileged to see firsthand the deep respect that Central Asian folks manifest for their environment. Is there a chance when you get settled in school that you might be willing to meet with these classmates?”**

**With a slight nod as a student might give a teacher or elder, she agreed.**

**I then rose and said (Я очень рад встретить тебя сегодня) “I am very glad to meet you today.”**

**And they, all in unison, replied (Мы также) “We also.”**

**As I drove back down the drive, I felt my own sweat on my back and it was not because of the weather.**

**Sacopee Valley High School**

**Our son and daughter both attended our local high school, Sacopee Valley, and my wife Marty and I were always welcome in the classroom, she demonstrating spinning wool or throwing clay pots and bowls and my working with the shop students in the school's woodlot, sawing and hammering together storage sheds which they sold to cover the senior class graduation celebrations. Once the forest floor was covered by the first snow, these seniors would be out the door with their logging gear, learning how to safely fell and limb trees and drive my team of draft horses in the school's woodlot. It amazes me today when I think what we were allowed to do with these kids back then.**

**One fall our Russian Peace Fleece business partner Victoria suggested that some of her students in Moscow who were making wooden knitting needles for our joint venture come to America and go to Sacopee. The cold war was still in full swing but our high school was all in favor of the idea as were a dozen host families. The experiment was a great success in spite of no common language. One host family even visited their guest's family in Bishkek, Kyrgyzstan. Some ten years after, this same student greeted me at the Bishkek airport and was my guide as we searched for wool to bring home to American knitters.**

**And here, now almost forty years later, I was once again escorting a Kyrgyz student into Sacopee Valley and introducing Katya to the principal Brian, who, God bless his heart, had learned the first verse of the epic poem Manas, a classic centerpiece of Kyrgyz literature.**

**Actor performing the Manas in period dress.**

**Now sitting in the Brian's office, this 15 year old teen seemed totally composed. He offered her a cup of hot tea and, as they both sipped, he asked if he might ask a few questions?**

**"Are you fluent in English?" he began and she replied "yes. My father is American, my mom grew up in Kyrgyzstan during Soviet times where Russian was the required language of the privileged but we spoke Kyrgyz to our friends and family at home. My parents are both doctors, taught in Western Europe medical schools when I was growing up, and I went to French and English speaking schools as well."**

**"And from your unique perspective and view of the world, what might you see as a purpose for yourself?" and she answered "to save my family and friends and those I have yet to meet from the oncoming destruction driven by climate change".**

**Brian paused. He suddenly wondered whether his prepared questions to Katya were relevant or even appropriate. He was not sure if he had every met such a thoughtful fifteen year old girl before. But Katya saved the awkward moment and continued.**

**"I care a great deal about the forest. The country from which I come long ago destroyed its native trees. I stand under a rare pine today by Lake Issykkul and appreciate its shade as if it is a gift from Allah. I want to better understand the forests of Maine and how they can help ward off the impending climate disaster."**



**Brian suggested they both go for a walk outside, ostensibly so they could remove the masks they had been wearing. He led us to the school's pine forest where I once worked with my horses years ago and asked Katya "the school board wants to build a larger middle school to meet the needs of the expanding community. They want to cut down this forest and put the building here. What might be your advice?" He asked this question already knowing her answer.**

## **Turkey Calling**

**It's Saturday afternoon and Sam and his dad Mike Eastman are sitting on a high oak ridge behind their house looking across the hills into New Hampshire. Sam works for his dad driving a grapple logging skidder after school and on weekends but during turkey season they come to this very ridge early on Sunday mornings to practice their turkey call.**

**Mike makes a call out over the downward sloping hill. Earlier they brought a cock up to just a stone's throw away. He fanned his tail feathers at the hunters before heading back down the hill. Mike loves his son more than anything in the world. These short weekend moments are what keep him going during the week. He's what is called an owner/operator, works alone with his skidder, and has recently finished paying a twenty year mortgage on his house. His wife's job is a huge help in keeping the family above water. But Mike's up and gone before dawn and home usually after the kids are asleep.**

**"There is a new girl at our school," Sam begins. "She looks Chinese but she is not. She comes from a harsh land where there are only a few trees. Shepherds live in houses made of wool, not wood. She told the class that living in the forest here in Maine is like living in heaven. They have Snow Leopards in the mountains of her country and also an endangered brown bear. They worship this wildlife and consider the sheep and goats which the wild animals kill as spiritual gifts to their gods.**

**"She showed us pictures of her country, how most rural people raise livestock and how sheep and goats can climb to 18,000 feet and drink from a thousand year old glacier that is now melting due to global warming."**

**Sam loves his parents very much but wonders if sometimes he brings things up that they just don't understand. He has used terms at supper like climate change, global warming and carbon footprint but they don't seem to be interested. Sam rides his bike to school rather than taking the bus but he knows that the machine his dad operates every day offsets any small effort Sam might make. But Sam is an eager learner and he welcomes Katya's arrival.**

Today as Sam is talking about clean air and the health of the forest, Mike remembers back twenty years to the winter he himself worked on weekends for that fellow Pete up in Porterfield with his two horses, Barney and Jake. It just took him just a few days before he was driving the team. Pete called him a natural. But Mike had school every week day and would never make enough money working horses to buy a pickup or maybe a house, even if Betty were willing to take on a job. In spite of the years gone by, he could still smell that team right here on this ridge, see the steam rise off their back from the melting snow, could still hear their jaws and lips grinding an apple at the end of the day. Mike had never shared those days with Sam and his climate questions. He was afraid that it would end with him saying something stupid like “can’t buy a new set of jeans with clean air, can fix your truck’s brakes with clean water”.

## Carbon Capture

“So please stop me if you already know any of this,” I said. Bill and I are in my farm’s hay barn with a breeze blowing through to clean out any nasty Covid cells that might be around. We are also wearing masks which we occasionally remove to sip some morning coffee.

“Historically trees from Maine have been valued for paper making, building materials or more recently for chips to be burned for energy. There was a time not so long ago when I could look at a tree and tell you its commercial value, the first two logs for lumber, the top two for paper and the branches for chips. After forty five years of cutting them down, I now look at them totally differently.

“Today Maine’s forest captures and stores 70 % of all the greenhouse gases that Mainers create with the forest soils safely storing 6% more. No other apparatus has been invented that compares with this natural mechanism. But this system only works if the trees are not cut down. They must be allowed to grow and prosper in a supportive environment. Older, bigger trees store more carbon safely than younger, smaller trees.

“I would imagine that if you took your Air Pollution Device into an older stand of trees, say one of a hundred years with a closed canopy and duff and debris protecting the soil, you would see a healthier reading than a younger stand that had been logged commercially.”

I paused because I began hearing myself talking and that is a sign to take a break. This gave Bill a chance to jump in. “But how can landowners afford to prioritize environmental over commercial returns? We are not a non-profit and have taxes to pay. And if we don’t provide the lumber for the market, then won’t the market go to some fragile forest in Southeast Asia to get their building materials?”

**“Yes,” I agreed, “this is called ‘leakage’ and it is a big problem. But frankly I can’t do much to influence Malaysian forestry other than set an example for what works here in Maine. But thanks to the Paris Accord, countries around the globe are realizing that paying to capture and control carbon is better than unleashing it do its social and financial damage.”**

**“But what would all the workers, loggers, truckers and mill workers do if they had no wood to cut and paper or lumber to sell?” he retorted.**

**I remained silent after this question because it has taken us exactly where I hoped the conversation might go. I left for a quick visit to the outhouse and brought back a fresh pot of coffee.**

**“Have you heard of the California Cap and Trade Carbon Market?” I asked on my return. “Even in its infancy it is making big waves. California was the first to require certain companies licensed in its state to measure annually their carbon footprint. A ceiling was then assigned above which a company must stay below to avoid paying a penalty. Many companies did everything they could to minimize their footprint. Their employees drove electric cars to work, they insulated their buildings, put up solar arrays, installed heat pumps, you name it, they tried it, anything but pay penalties. But no matter how hard they tried, some companies could not stay below the ceiling. So California offered these businesses the option of purchasing carbon credits from certain certified forest properties here in Maine through the California Cap and Trade Program.**

**“These forest owners could sell these California companies so many tons of carbon for so many dollars a ton which would remain safely stored here in the Maine soils. Then these companies could use these credits to offset their carbon footprint and stay open.**

**“Early market prices were around \$15.00/ ton but as the pressure rose with the demand, so did the price. Maine’s forest owners were closely monitored by a third party to guarantee the security of this stored CO<sub>2</sub>, i.e. that it safely stayed in the Maine forest.**

**“The Nature Conservancy (TNC) was the first in Maine several years ago to measure and sell carbon on a large parcel of woodland they owned in Washington County. With that income they were able to purchase an adjoining parcel of some 12,000 acres whose stored carbon they went on to sell to the market as well.”**

**“Those were pioneer days. Expenses for the measuring and monitoring carbon capture transfer put the average small woodland owner quickly out of the running. But we were watching and waiting for the day when “aggregation” might be possible, when small woodland owners might join forces and together approach the expanding carbon market with an affordable scenario. That day is now closer.”**

**“And that is why we are having this conversation?” Bill asked.**

**“Exactly,” I replied, “but not exactly. I have been trying to resolve two consequence of this scenario before I can unconditionally embrace it. One you brought up a few minutes ago and the other your daughter mentioned at school last week.”**

**“When I moved here, I knew nothing about farming, nothing about the forest and less about logging. My neighbors showed me how to shoe a horse, start a saw and exaggerate my experience to get a job on a woods crew. My children grew up with their children and to this day I value their friendships. The challenge I struggle with now is how to save the forest ecosystem without putting my neighbors and friends out of a job.**

**“The forest industry is not making this struggle any easier. By exaggerating statistics about mill shutdown and job loss, they put the fear of doom and disaster in the hearts of any legislator in Augusta who, for a moment, questions the future of pulp and paper.**

**“So about a year ago, a small group of like-minded friends began studying the Maine forest and what management practices might be appropriate not by increasing the amount of biomass for harvest but rather by increasing the amount of carbon captured and stored in the soil.”**

**“How would you measure such an increase,” asked Bill.**

**“Let’s go back to the small tags you saw on my trees. Each tag represented a specific tree and the amount of carbon that tree holds in its fiber. This measuring is time consuming but quite accurate. It will take me a year working alone to measure the total carbon on these one hundred acres. But the buyer of my carbon will appreciate the accuracy and so will I. But I need a stretch. Let’s go back up into the woodlot before I say any more.”**

### **I am Sixteen, Going on Eighteen**

**Brian sat in his office before sunup on a Monday morning, worrying about what this first school day under Coved would look like. Actually he was not really worrying about that. He had a great teaching staff, they were all up to speed and they would take on this challenge with compassion and gusto. All will be fine. He was just a bit player after all.**

**Actually what he was thinking most about was the right grade in which to place Katya. They had spoken several times since her arrival. She would not be turning sixteen until October and technically belonged in the Sophomore Class. But her level of comprehension rivalled some of the seniors he knew.**

**Brian’s daughter was also a sophomore. Was he selfishly fishing for a friendship for his daughter? But in the end he knew that the Junior Class was ready for Katya and her for them. It was not till later that day that he had a chance to peek in and see how things were**

going. Homeroom teacher Mrs. Stacey saw him at the door and waved him in. There were several new class members this year in addition to Katya and he went around bumping elbows with all of them.

How strange they all looked in their masks. They had all been tested for Covid that morning and it seemed to have a bonding effect on the class. Tomorrow they would split into two groups, Group One coming on Monday and Wednesday, and Group Two on Tuesday and Thursdays. This doubled class room in size to support eight foot distancing. Would this ultimately make the class stronger or weaker? Only time would tell.

Sam was pleased to find himself both in Katya's rotation schedule and Writing Class. Not that he was much of a writer. But recently he had found some peace in the early morning, deciding to have a 4:30 breakfast with his dad every work day. He would then have a few hours before biking to school. His family had a tool shed in the back yard and he would go there with a pen and lined pad, hiding his work in a seed basket when he was done.

He would often be surprised when he opened the pad the following day to find what he had written or drawn. There were always the animals. At first there were birds, crows, wild turkeys, eagles, but later his creatures became less happy, less contented? He did not know why this was happening. He began to find out when he gave his foxes a voice and a story line.

*Jeremy, a young fox always in trouble, began talking with his older brother. At first they were joking but then it became rough. One day Jeremy threw a stone at his brother. It hit his head and he fell. Jeremy ran to his brother, held his head in his lap, asked for forgiveness and said that it was because of a pain on his shoulder. The older brother then stood up and parted the hair on his brother's arm to expose a sore, an open wound that was festering. Sam wept for that fox. Why, he did not know.*

### I am Not the Problem but the Solution

On a clear blue Fall morning, Bill and I hiked back up to the clearing where we first met. I took the initiative.

“I will now describe my 3 M process. Let's first look at your present land holdings. Say, for example, you have one thousand forested acres of carbon growing here in Porter. You accurately Map out your property lines and, with a forester's help, chart the location of tree species and soil types. You then Measure the amount of carbon being stored in the trees and soils and make a rough determination of the health of the forest canopy, the presence of disease and the appropriateness of the soil vs. the trees that are growing in it.

**With that information you go to the Market and see what it is paying for carbon. You then have a rough idea of how much you can spend on forest management to secure your carbon and still make a profit.**

**“One exciting part of this system is the number of people your one thousand acres is employing. Our small group, the Forest Carbon Project, is working on developing extraction guidelines for certain trees or tree types that, when removed from the stand, would increase the annual carbon intake, hastening overall greenhouse gas mitigation. This option would need to be closely monitored less we fall back into old mindsets where selling forest products becomes more attractive than capturing carbon. These trees, when extracted to improve overall carbon storage, might arguably be sold for income but also may well end up lying on the forest floor, foregoing all the CO<sub>2</sub> released from the machinery necessary to remove them and get them to some market.**

**“Wages would be paid by the hour. I would stay away from large company crews and encourage small scale owner/ operators to cut dying or damaged product using low impact forest equipment, smaller cable skidders and even animal power for sensitive environments. Ninety percent of the time the crews would be working to increase and measure forest carbon, increasing income and solving the challenges your woodland presents.**

**“This is all very interesting and inspirational,” Bill interjected, “but can you guarantee that the carbon market will always be there?”**

**“I think that your daughter is the best one to address that question. She knows that the Covid pandemic did not start in a pig’s belly in Hunan, China. The origin of this virus is more likely to be found in cultures that have exploited their environmental resources, leaving behind disease, social degradation and one sick pig. Yours and my forests and the carbon they hold are here for us as perhaps one of the last lines of defense, if not for the human race at least for the wild animals that live here. You and your family are in an ideal position to exploit this carbon opportunity and avoid our untimely demise.”**

### **One Sixty Ice Cream**

**There was no school bus route that included Ridge Road so Bill drove Katya to school each day and picked her up. On Friday afternoon of the first week of school, there was a crowd of kid and adults standing in line for the locally famous One Sixty Ice Cream. Kayta saw Sam in line with his dad and when she waved, he came running over.**

**“Hey, why don’t you and your dad grab that last table over there and my dad and I will get you what you want?” And before they could comment, Sam dragged them out of line and safely seated them at a table and soon returned with his dad, both loaded with goodies.**

**“Oh my gosh,” said Bill. “How much did that cost?” and went for his wallet.**

**“Not a chance my friend,” replied Mike. “There is an ancient tradition in this town that the first one to the window pays.” Mike then reached into his pocket, put on a mask and offered an elbow bump.**

**“I’m Mike Eastman, Sam’s dad. Welcome to town.”**

**Bill was totally flustered. Here he had been standing in line with a bunch of strangers, assuming that they would judge him for wearing a mask when many of them were not.**

**“Boy, Mike, I feel pretty stupid,” as he reached into his pocket for his own mask. “I’m a doctor you know. I should know better.”**

**“Oh, don’t give it a second thought. If we all knew better, we wouldn’t be in this mess.”**

**Katya and Sam were busy waving at school mates waiting in line. “You know you have one special daughter there,” Mike began. “Sam comes home saying that he is learning more from what comes out of her mouth than from the teacher’s.”**

**“Oh dear,” blurts Bill. “She and I love to talk more than we sometime love to listen.”**

**“Oh, that’s just human nature. Sam tells me that you are a doctor.”**

**“Yes, that’s right, a retired one. My wife and I live on Henderson Hill.”**

**“Oh, I once did some logging up there for a Canadian named Wormwood,” replied Mike.**

**“Yes, that would have been my dad. I imagine he was not the easiest person to work for.”**

**“Oh, he was alright. Didn’t see much of him. I sold the logs and paid him stumpage. Didn’t cut it as heavy as he wanted. I imagine the stuff growing there today is pretty good.”**

**Bill noticed his ice cream had almost melted and so had Mike’s. “I guess were not here today to eat ice cream,” Bill noted.**

**“I think you’re right,” replied Mike. “Maybe we’re here so our kids can hang out” and they both laughed.**

**“Look Mike, I could use some help. Do you know Pete Hagerty.”**

**“Sure I do. When I was a kid, he let me come to work with his horses, Barney and... ah... maybe Nick. No, I think it was Jake. My grandfather Clayton was still alive then and a real horseman, no crawlers or skidders for him. He was so excited to see me working with Pete’s team. He would come up several times a week and even though he could hardly walk by then, he would sit down on a stump and watch. And each time Pete or I went by with a hitch, he would clap his hands like a small child at the circus. How do you know Pete?”**

**So Bill brought Mike up to date on the carbon conversation. Mike just listened till Bill was done.**

**“You know,” Mike says, “Sam gets up and has breakfast with me every weekday morning at 4:30. When I head for work it is often still dark outside. Instead of taking the bus, he rides his bike through town to school, even in the winter.**

**“We don’t plow our sidewalks here so he often gets splashed by passing cars. He has been warned by the cop at school but Sam won’t listen. And you know why he does this? Because of the damage that bus engine is doing to the environment. Now where does he get this from? Neither my wife and I are environmentalists.” They sat quietly for a few moments, letting Mike’s question hang in the air.**

**Bill was the first to interrupt the silence. “I could use some help from someone like you” and he began to lay out his 3 M project. “I need someone would could see all the opportunities and the pitfalls of this project. It would be great to get Sam involved as well. He is obviously committed to finding a solution to climate change. I would pay by the hour, I would visit every day, would help with hiring more folks as the projects expands. Are you lined up with work for the fall and winter?”**

**“No, that’s not an issue. Sappi is closing its biomass operation as has Pine Tree in New Hampshire. A pulp mill up in Jay exploded a while back so nothing is moving. The only thing I was looking forward to was doing some hunting with Sam. We’ve already been out calling turkeys in.” Something inside Bill began to relax. He was feeling less alone than he had a few hours ago and continued.**

**Bill continued. “At the outset we won’t be doing any extraction, just counting and measuring trees. I will hire a forester who has done carbon measuring before. He or she will train us to use the latest advances in measuring, capturing and storing data.”**

**Bill saw Mike’s face fall. “What?” Bill asked.**

**“Sam won’t have anything to do with 5G Wideband,” said Mike. “Says it is already killing people. I don’t know where he is getting this stuff.”**

**“That’s ok,” said Bill. “Not a problem, there is satellite imaging that is safer and just as reliable.”**



**“If you don’t mind me asking, who might you be considering as a forester,” Mike asked cautiously.**

**“Well that is an important question. Any thoughts?”**

**“Well if it were me, I would get someone just out of school, not yet afraid of the powers to be. The shit is going to hit the fan when local foresters and loggers find out what you are planning to do. Tell me if I am wrong but your dad owned a hell of a lot of land around here, right?” Sam asked.**

**“Approximately 250,000 acres in York, Oxford and Androscoggin County ,” Bill replied.**

**“So these old timers, most of them my friends or relatives, are going to quickly see the implications of your future forest management goals, which basically are to cease and desist the raping and pillaging of their surrounding territory. I have worked with all of them at one time or another. There are some really good foresters and loggers and then there are the others, just educated by teachers and text books funded by the pulp and paper industry and they never wanted to go against the grain. But times are changing. My cousin’s son just graduated from U. Maine School of Forestry at Orono with a very different set of values than these earlier grads.**

**“My suggestion is that you keep your powder dry for as long as possible. Maybe not use the word ‘carbon’ for a while. You are the new landowner and it is normal for you to want to do an inventory. We could measure trees and soils and let others assume it is for organic insect control or the effects of invasive species. I do have a pretty good friendship group, hardworking men and women that could use the work.”**

**Bill suddenly realized where he was sitting at the ice cream stand, right in the middle of those folks most likely to be affected by his future plans. Sam and Katya had been at the table for a while, long enough to eat their father’s ice creams. It was time to go.**

**“Look Bill,” Mike said as a goodbye, “what you are trying to do is great. But it is very risky. Some local folks tried to stop hunting bears with dogs. They don’t live here anymore. Just look at all the Trump signs. We just need to do this with eyes wide open”.**

**Bill smiled when he heard the “we”.**

## Lidar

Marty, my wife, joined me at the Henderson Hill farm the following Sunday. It was great to have Mike present who I had not seen in years. Bill and Tatyana had put together quite a spread and Katya was eager to tell all of us about the research she and Sam had done at school on measuring forest carbon.

“Thank you all for coming,” Bill started. “I would like to start the meal and our meeting by first mentioning my father Frank Wormwood who acquired all this beautiful forest land that surrounds us today. I am sure that fathers and sons around the world have difficulties getting along and my father and I were no exception. Yes, he had a love for money but he also had a love for the forest and, by combining the two, he has provided us today with an opportunity to do work that could radically change the course of these trees and perhaps those of the world beyond. So thank you dad.”

My wife Marty had brought some vegetables from our garden which, when doused with Tatyana’s special Kyrgyz oils and spices, took me right back to the Tien Shan mountains. After we had a chance to “tuck into” the meal, at the request of Bill, I started the meeting.

“Marty and I moved here forty five years ago, raised a family, and made a livelihood thanks in great part to our neighbors and friends who had called this area home for generations. There are many things challenging our community today, not the least of which is Covid 19 and the disruptions it is causing. I would like to think that the work we do in this forest will result in a new dawn, “novi deen” in Russian. To start, Sam and Katya have some information to share.

“We will first read from a study we found through school,” Sam began.

“Forests are key in stabilizing the earth’s climate – they hold nearly half of carbon on the land and offset one-third of human [carbon emissions](#). While trees cover 4 billion hectares of the Earth’s surface, we are limited in our ability to preserve and manage them over the next century, simply because these plants remain incredibly difficult to measure in detail without cutting them down.

“Tree weight is directly proportional to the amount of carbon it holds – approximately one half of a tree’s dry mass, or biomass, is carbon – so accurate tree weight is critical for estimating forest carbon. Essentially, the most straightforward way of measuring how much carbon a tree holds is to put it on a scale which is obviously not practical.”

Then Katya took over.

**“The standard approach of estimating tree weight (and carbon) without cutting them down is to develop a simple relationship between the diameter of the trunk of a tree and the carbon in that tree. Over a range of tree sizes, a relationship begins to emerge – larger trees have more carbon – and we apply these *allogometric* relationships or *allogometry* to millions of tree diameter measurements globally. But what happens if tree *allogometry* breaks down and is not representative of the actual carbon held in trees?**

**“These issues could be solved with a method of efficiently estimating the weight of trees without the need to cut another tree down. A new technology may be the key: *terrestrial laser scanning* or Lidar.” ([neonscience.org/lidar-basics](http://neonscience.org/lidar-basics))”**

Katya then sat down and I continued.

**“Forty five years ago when I started working in the woods, I looked at a tree and saw only logs for timber, pulp for paper and wood for the stove. Most of us living here then had no idea what the forest would look like today. The horses, for the most part, are gone, replaced by heavy, expensive equipment. We all know we are cutting too hard during too long a day. And now the climate is telling us to find another way. How to do the right thing for the earth and keep people employed in healthy and meaningful forest related jobs?**

**“As Sam and Katya point, a new technology has arrived that will keep people working in the woods, measuring forests rather than cutting them down. For landowners growing carbon in their forests, they are now being paid \$25-\$35 per ton of stored carbon to keep it right where it is, in the forest, on the front lines fighting climate change.**

**“And they will not have to run smoky saws or noisy skidders. As a friend Bill Hall, who ran horse drawn crews just after World War Two once told me, ‘Peter, in those days the deer would come out of the woods and watch the teams go by.’”**

**“There are arguments that don’t favor this new forest. ‘Where will paper come from, won’t the mills just go elsewhere for their saw logs, what will folks use to build and heat their homes?’ These are good questions and they will all be answered in time. But if Bill and Tatyana and Katya are willing, we have a huge experiment right here in southwestern Maine that could help answer these questions.”**

Bill then stood up. **“Yesterday Mike and I went over the maps of my father’s land and the names of the jobbers that worked them over the past thirty years. There are no fewer than 23 crews from eight towns in Maine, three from New Hampshire and one that came all the way from Washington County and stayed for over a year. And that does not include the foresters and truckers and the local saw mill workers.**

**“Everything stopped when my dad died thirty five years ago. I was in the Korengal Valley in Afghanistan at the time and was not able to return the states for several months. I was then constantly contacted by jobbers wanting to cut. But I graciously refused. What we**

have today, thanks to my dad, is a forest, much of it physically interconnected, that has had a third of a century to recover from the old harvest practices. Through thoughtful management, with carbon capture and storage as the primary goal, perhaps we can support a local workforce, turn a profit and turn the tide on climate change.”

“Last night,” Bill added, “at Peter and Marty’s suggestion, I called their son Silas who owns a movie theater in downtown Kezar Falls, less than a mile from the high school. I told him what was cooking and he suggested that Peter’s Forest Carbon Project take over the front lobby of the theater. Because of the Covid, there have been no films or public events there since last winter. He stressed that the theater needs to be used. Limit the number inside to ten at one time, have appropriate social distancing, wear masks and it should be a perfect match. There are phones, internet, heat, bathrooms, computers and film making equipment.

“In light of that offer, I suggest that we propose four teams of two students each, Team A and B working Monday and Wednesday and Team C and D working Tuesday, Thursday. We have the school agree that these students’ work is of scientific value and should get formal credit for their effort and outcome. Their daily research will be overseen by the school’s Science Department and our own board which will be comprised of state and local expertise. I am in the process of forming a non-profit which will provide insurance for all students who are in good academic standing in their other subjects.

“We meet at the theater first thing every morning and again when we return from work, to download information and share input. We will request a small bus from the school to provide transport. In order for the school to agree to this, we need them to buy into the academic importance of this work. The students will be employees of what we will call the Forest Technician Project and be insured appropriately.

“I met with Brian, the high school principal, and he seemed to support the idea. He just needs to pass it by the school’s academic committee. The importance of this work, I must admit, is something I personally am only starting to appreciate, given my limited understanding of forest ecology.

“Silas reminded me that Sacopee has a ‘jobs to work program’, JMG, where older students can get paid while learning a skill at school. He sent me some of the films these very students have made with him and they are extraordinary.

“I suggest that we create a program where six young men and women from the junior or senior classes spend a portion of their week working as Forest Carbon Technicians in training. We pay these students \$10.00/hour for a five hour day, two days a week. We start at 7 am, go till noon. That’s \$100.00 per week. We could extend hours when folks get on a roll. Mike has some additional thoughts.”

“Yes, well,” Mike began, “the first information we need to gather is an inventory of what we have for land. I suggest that we initially focus on a 220 acre parcel not twenty minutes from the theater named the Law Hobbie Lot. Task 1 would be to walk and flag its

boundaries as well as map its streams, wetlands and old roads, then cross check our work with topo maps and documents, like registered tax and deed maps.

“We would then inventory the diverse forest species, soil types and erosion vulnerability. If the last jobber, Moses Durgin, is still alive and I believe he is, we could invite him to help fill in the historical picture of that forest. Once we have all the data, we use a variety of technology to measure the carbon capture and storage. I have also invited Sophie Durand, who has just finished forestry school with a focus on carbon, to meet with us when we are ready. She is also our new State District forester and the daughter of an old friend.

“And finally, thank you all for coming today. I can hardly wait to start.”

### Over my Dead Body

On the same day as our luncheon, on the far side of town, a group of loggers and truckers were meeting at Doug Brown’s garage to discuss the potentially dire situation that the rumor mill was circulating. Doug’s brother Jim brought folks up to speed.

“News from the biomass front is not looking good. It seems for sure that the general public is starting to believe the academics that biomass is not carbon neutral and that it is contributing to global warming. SAPPI Westbrook is ending shipments in November, Pine Tree in New Hampshire is shutting off until further notice and next week the market is supposed to go through the floor due to falling oil prices.”

Doug is a smart cookie, no fool, and has been in the business for forty years.

“You know,” said Bear Brooker, “I hear that the son of Wormwood is back, living in that glass house on Henderson Hill. Let’s see if it’s time for him to loosen up on some of that acreage.”

“It sounds unlikely,” replied Jim. “I saw Sam Eastman over at Windy Ridge last week. He has started working for Bill Wormwood, confirming property lines and stocking rates. They have a charge of seniors working for them as well.”

“Well, hell, that seems normal” replied Bear. “If I’d been away and my dad was dead, I would be doing the same thing. It will just be a matter of time before we get a call to come and cut some trees.”

Jim shakes his head and lights a cigarette. “No such luck. Bill Wormwood is one of these environmentalists. Don’t cut a god damn tree. This ‘climate change’ shit is driving me wild. My family has been working in these woods for five generations. What the hell am I supposed to do? Go on welfare? Over my dead body!”

**Bear got up to leave. “There are a lot of people that need to know what is going on. Let’s give it a few weeks before we do anything radical.” And with that the group disbanded with the younger crowd smoking tires and spinning gravel as they headed down the road.**

### **Eight Forest Carbon Tech Majors at the Theater.**

#### **Week Three- Day One- Group A and B**

**The minibus from the school arrived at the theater a bit after eight on Monday. Standing there waiting by the theater’s front door, leaning on a cane and looking like he might topple over at any time, was Moses Durgin. I had not seen him in a few years but his bright smile shone through the white stubble on his chin. I had invited him to talk about forest fires, today’s topic. It was week three of the Forest Carbon Technician Project and the first chance to sit down and assess our progress.**

**“I was a boy of eight back in ’47,” Moses began. The war had been over for two years. I lived in Porterfield then in the very house where Mr. Hagerty lives today with his family. And I kissed my wife in the balcony of this theater for the first time.” Everyone smiled.**

**“During the war the forest to the north of our farm on the Burnt Meadow Mountains was cut pretty hard. Our family had two teams of horses and we worked yarding logs for Bill Hall’s saw mill.**

**“They were only interested in the pine for lumber and the hardwoods for steam train’s boilers that ran twice a day from Fryeburg to Portland. There was a lot of slash left lying on the forest floor in ’43, waiting for extremely dry weather, a good breeze and just the right spark.**

#### **Wilbur logging with his team with snow on the ground**

**“One morning in late October we got the notice that a fire was nearby and to immediately move our cattle and horses south to Parsonsfield. But my father refused. By that time, the**

horses had smelled the smoke and we knew it was too late. National Guard officials came down the Porterfield Road with evacuation orders. They searched houses and found all of us hiding in the hay loft. But they missed Carrol and Wilbur Lewis who had hidden in their basement next door. Those two brothers waited till nightfall, grabbed two portable hand pumps and ran towards the fire 'till they reached the Ten Mile Brook at the foot of the mountains. They filled their pumps and put out every small fire that jumped the stream. They worked tirelessly all night and kept the fire at bay till the wind changed direction and blew the fire west into New Hampshire. Only one place burned, the MacDonald farm. All the rest of Porterfield was saved. They were heroes to their neighbors.

“Mr. Hagerty told me you might be working up in those very hills in the coming weeks. I am sure you have all seen the destruction that has been going on out in California and Oregon. It’s almost October and again the forest floor here is extremely dry. Wilbur and Carrol are gone now so it will be up to you to watch and smell. And maybe not cut the forest as hard as we did in the past.”

Then there was time for questions.

Corinne: “Mr. Durgin, thank you for coming here today. You have seen a lot over the years. As students interested in the forests and all that goes on in them, what should we be looking for to prevent what happened here years ago as well as today out west?”

Mr. Durgin” “Well young lady, when I was your age I thought I could take and take and not worry about giving back. I hooked as many fish as I could carry home, jacked as many deer as I needed to get my family through a hard winter and cut as much wood as I could sell to keep the wolf from the door. And I went to church every Sunday as a guarantee that my program was ok with the Almighty.

“Now, as I smell today’s air, taste the water in the brook and watch the leaves change early after one more extra dry summer, now as I put on my mask before going into the store and not visit friends that might have the Covid, now I wonder if am, in some way, responsible of the mess my generation has left for yours to clean up. My dad came home from war a changed man and not for the better. I am not sure what’s ahead for your generation.

“I often think of how I might give back as I walk over the forest we once cut with Bill’s saw mill. Peter has shown me a new way of determining the age of a tree without having to cut it down. You folks are probably way ahead of me on this. But as I visit the old saw mill sites I find trees that are now very tall and majestic. When I measure them, I find that some are over 150 years old.

“When I do the math, it turns out that they were 70 years old when we were last sawing there. They would have been valuable to us then but for some reason we passed them by. I have come across hundreds of these trees like this and it makes me wonder if this was a way that Bill’s crew found to give back, to take what you need but sometimes leave the best. Maybe we weren’t as greedy as I remember.”

## **Bill Hall's Saw Mill before the War**

**“In the past I never would have agreed to Mr. Hagerty’s request to meet with you all because I felt I had nothing to offer. But I said ‘yes’ and here I am. So you might consider seeing the forest as I see it today, a gift from God that, if treated properly, can help clean the air, purify the water and give your generation a chance. Find something else that doesn’t destroy nature to keep the wolf from the door.”**

**Brian: “My family has worked in the forest for generations. We live in a beautiful house, my two older sisters are happily married to men who work in the woods every day and they are worried that, with all this talk about climate change and cutting less trees, they will lose their source of income.”**

**Mr. Durgin: “Thank you Brian. That is not an easy question to either ask or answer. I have known your family for many years. There were times when you dad charged me next to nothing to truck a load of mine to the mill when we were having a tough time. There were wet springs and summers when they wouldn’t take their horses or skidders into the woods for fear of damaging the forest. And they always left more than they cut.**

**“Now I have no idea what’s down the road. But whatever it is, I would recommend that you look forward and not back. You and I both know that the world is in a “world of trouble.” But if it weren’t for the trees we would be long gone, along with all beings that breathe oxygen. We have another person in the room who knows lots more than I do, so I would like her to take over for now.”**

**Sophie Durand: “Good morning and thank you Mr. Durgin. As I look around the room, I am pleasantly surprised to see how close in age we are to one another. I come from Northern Maine, St. Francis to be exact, and spent my childhood behind a team of logging horses.**

**“I just graduated from the University of Maine’s School of Forestry and am very excited to meet all of you. But before I talk I would like to keep the flow of questions coming from all of you. But I would like to add what was said to Brian, that the future of working in the forest has never looked better for your generation. You have yet to decide what you want to study. If it is forestry, I would strongly suggest that you consider a degree in Forest Technology where the focus is on keeping trees upright and thriving and not being cut down for paper or building supplies. There will be plenty of folks focusing on what forestry has been. The exciting stuff is what is coming at us right now, in the immediate future.”**



### **Week Three- Day 2-Group B**

**Sophie had enough boundary maps for everyone and handed them out at the main entrance to the Lawrence Williams woodlot. The group broke into pairs, headed off to different sections of the map, checking their GPS cell phone programs to make sure we were all on the same page. They could use the GPS only in emergencies. From day one, Bill wanted us to get a feel for the woodlot from our feet and noses first. Stick to the stone walls, read the map, remember that water always flows downhill and check in every two hours.**

**Corinne was paired with Sam as A team, Alice with Brian as B and Katya with Ryan as C. Everyone except Katya was an experienced hunter and knew that they were at the end of bear season. Treeing bears with dogs would then follow. There were no fans of this latter “sport” in the group. There was “scat” sign everywhere due to the remoteness of this particular lot.**

**Bill and I remained on a twitch path about half way up the mountain to monitor traffic from the teams. Sophie was presently tracking Team B whose GPS had gone on the blink.**

**(Q)“Can you see any hills through the canopy?”**

**(A) No, but we can see the sun. I think that we are on a hillside facing east with the sun setting behind us.”**

**This was the first time that day that a team was lost. It was well past noon and the bus would be down in the parking area soon.**

**(Q)”Are there any streams or brooks you can see?”**

**(A) “Yes, there is a small brook to our right”.**

**(Q)”What do you know about water?”**

**(A) “It always flows downhill to more water”**

**Sophie: “I am going to fire two shots, let me know if you can hear them.”**

**BANG! BANG!**

**(A) Yes we can hear them. They are off to our right. I see the stream on the map. If we follow it we will miss the parking area so we will bushwhack to the east until we come to a marked stone wall which will take us to the parking area.**

**Sophie: OK, I will keep up the firing until you get to the stone wall.**

**Somehow it came to my attention that Bill’s mood had shifted immediately upon hearing the gunfire. Sweat appeared on his brow and he trembled with every shot.**

**“That’s an M-27,” he said. “Can’t buy that here in the US. Sophie’s dad must have been in the Corp, maybe in Afghanistan. It was the M-27 vs. the Russian made Kalashnikov, AK-47, the Taliban’s favorite weapon.” He paused. “I am sorry, since then it has been hard for me to hear gunfire. I think it might be best if we make our way down the path to meet the team.”**

**The following story slowly came out from Bill as we walked down the tote road, hoping that Sophie’s gunfire would bring B team home.**

**“I was in Afghanistan in 2009, working with Medicine sans Frontier (Doctors without Borders) in a makeshift hospital, protected by a small group of Marines, treating both Taliban and US forces. It became necessary to abandon our position due to the imminent arrival of a large division of insurgents. I had two patients, one a Marine and the other a Taliban fighter. Both were seriously injured and needed critical attention to survive. Just**

before dark a Medivac copter arrived with room for two. Sargent Sheldon Pierson, the last Marine Corp medic left to protect the hospital, gave me an order.

“Dr., with all due respect, you need to leave now. This Taliban fighter has little chance of surviving and this will be the last flight before we are overrun. I order you to leave now”.

“I looked over to him and said, ‘Sheldon, with all due respect, you have no authority to order me to do anything. I appreciate your concern but I need you on board that arriving copter to make sure that Lt. Sawyer makes it out alive.’”

**BANG! BANG! From team B.**

“Sheldon left in a huff but when he reached the copter with the stretcher, he found out there was already a corpsman on board to keep Lt. Jack Sawyer alive. He apparently watched the Huey’s departure and then quietly returned to the operating room, standing just outside the doorway, choosing not to be seen. There was a moon out. I had shut off the lights and, after the chopper left, all was quite.

“Kafe-a to-hhes” (سحت فيك) (how are you feeling?) I asked the patient on the OR table. “Alhamdulillah” (I wonk ton did I“ .ylper stneitap eht saw (hallA ot sknaht ,llew) الحمد لله), you spoke Arabic”, the patient followed in English. I broke out laughing. “Allah keeps his powder dry until the last minute,” the patient replied. He then went on talking. I realized I had never had a conversation with this patient since he arrived two nights ago.”

“Look, I am a low level person,” he went on, “in some ways not worth saving. And they will overrun this building without checking. You need to leave so you can save more lives. I will be OK.”

“You are the second person tonight to tell me to leave,” I told him. “This is what I do. God’s mission for me is to reduce my patient’s suffering. I give you the meds and you do the rest. I am going to increase your meds right now. Allah will determine if we continue this conversation at a later date.”

“All was quiet for several hours. Sheldon looked in the OR on occasion to see me sitting next to the patient, eyes open and looking out the window and down the valley from where the Taliban would come. My patient was asleep; his breathing had become more regular, his blood pressure normal. I knew he would make it.

“Then, at first light, the sound of chopper blades came down the mountain from the Pakistani side, staying as high as possible before going into a steep dive, heading directly for the operating room.

Sheldon then ran into the room to face me. For a moment I thought he was a ghost. Then we both looked at the Taliban fighter on the table.

**“What is your name?” I asked. “Aarash” (sunshine in Arabic) was his reply. “Well sunshine, it’s your choice, come with us to get medical help and a long term stint at Guantanamo Bay, Cuba or wait for your folks who should be here any minute”**

**BANG! BANG! Team B again**

**“I am not under arrest and a POW?” Aarash smiled.**

**“Not a chance. As I may have mentioned, I am a doctor and I am not a soldier of anyone’s army. I have no authority to arrest anyone and I am sure that my friend Sheldon here agrees. Your meds are working now, kicking in. I think you will be fine. Those are our planes; we jump on board before the horses arrive and we forget you are still here. That’s ok with you?”**

**“Allah Akbar” was his reply as Sheldon and I ran towards the Medivac and saw the horses and heard the gunfire in the distance. We were whisked away into a new dawn, a “novi deen” as my daughter Katya might have said if she had been telling the story. I hope our lost team has made it off the mountain.”**

**There, standing in the parking lot next to Team B and a somewhat surprised bus driver, was Sophie holding her M-27 by her side. “It was my father’s,” she smiled.” He was a Marine in Afghanistan.”**

*Nb. Doah, Qatar, Sept 12, 2020, At peace negotiations between Taliban and Afghanistan forces, journalist Bill Whitten of the London Times asked one of Mullah Omar’s deputies if he were optimistic.*

*“Of course, I have never given up hope. Many years ago I was badly wounded and in the care of an American doctor in a makeshift hospital in the Kunar Valley. He stayed behind when his support team left because he said it was his work to make me well. He knew I was a soldier and a Taliban. He spoke Arabic and I lived. I have never given up hope of seeing him again so that he may meet my children and I his. This is what this conference is about for me.”*

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**Week Four Group A, B, and C together at the Kezar Falls Theater**

**Guests- Bill Wormwood, Peter Hagerty, Sacopee teachers Mary McAllister(Science), Jack Norcross (Math), and Karen Stacey (English)**

## **Rain**

**It took one month before all the property boundary were confirmed, roads laid out, streams and wet lands defined and the location of forest species roughly defined. The first Friday in October, forester Sophie opened the theater office early and set up her computer so her monitor today would be the theater's full screen. Thanks to a fast internet connection and help from Peter's son Silas, by the time folks from school began arriving, her Lidar presentation was ready.**

**"OK everyone" Silas began, greeting folks at the door. "Today we are meeting in the main theater. You can pick your Covid seats." When all were seated, the lights went out and they were engulfed in total darkness. Then, the theme song from 'Chariots of Fire' began playing and the screen was engulfed with color and action. The recent snow on Mt. Washington could be seen in the distance, filmed from a drone high in the sky as Vangelis played his music. Then, the forests of the Hobbie woodlot jumped out below with all its color and glory. Someone shouted "there's the school bus" and everyone then realized that they had been there on the day of that flight, working somewhere below.**

**The music came to an end and the lights slowly turned up. And Sophie took to the stage. Comments like 'how cool was that' could be heard from the students.**

**"Thank you Silas for that great beginning," Sophie offered. "Now we can appreciate the Hobbie Lot from a different view, this time from the sky." And the lights dimmed and the screen again filled with color, but this time with a very different effect.**

**Sophie began. "I will now read your some info on LIDAR from the SBL web site."**

**"LIDAR data processing and technology is very useful in gauging the vertical structures of forest canopies. The density, height, timber volume, basal area, and biomass can be successfully attained from LiDAR data. Even the largest canopies can be understood easily with LiDAR equipment. LiDAR models also help in understanding complicated forest structures for generating feasible forest inventory." She then climbed up on the stage, standing in front of the projected image with a pointer.**

**"What we are looking at now is the forest canopy. For one month you have been looking at the underside of the canopy. Today, like a bird, you can look down and appreciate the other side. What is important from SBL's Lidar Assessment is that 'the density, height, timber volume, basal area, and biomass can be successfully documented.' Can anyone tell me why that is important for our work?"**

**"It means that we don't have to measure the carbon in every tree with a tape?" a voice came from the darkness.**

**“Yes, that is correct. We do need to establish inventory plots throughout the woodlot to confirm that Lidar is on track. Once we do that, we apply for Carbon Credits, which return to us as financial rewards for the carbon the woodlot is, in fact, storing.”**

**“They take our word that we have so much carbon safely stored in our forest?” another student’s voice asks from the darkness.**

**“Not quite,” explains Sophie. “We pay for a secondary on-the-ground inspection, done by foresters specially trained to conduct this required oversight. If what we say is accurate, then we get the money back to cover Lidar expenses, your labor and other costs. But regardless of the money, we will know how much carbon we have stored in the forest and given the extent of Bill’s land holdings, we could make a substantial dent in offsetting greenhouse gasses here in Maine and globally.”**

**Same voice asks, “Can these carbon certified forests be cut for lumber or pulp and paper?”**

**Sophie: “Perhaps, but only if the extraction increases the amount of sequestered carbon. And that would need to be measured and shown as not to be a ‘business as usual’ scenario. How about more questions?”**

**Katya and Tatyana suggest that community action groups be created, bringing attention to a specific forest’s attributes and how it might need protection? Should Bill make contact with Fish and Game and the Warden’s Service? Should some of his lands be closed to certain types of hunting, like using dogs to hunt bears and coyotes? Should there be some land where there is no hunting, other land where hunting is encouraged? Are there any buildings on any of Bill’s properties and if so, does anyone live in them? Are all his lands open to the public? Should Wormwood Woodlands become a land trust, a 501.c3, should there be a board responsible for its management, statements of purpose, etc.**

**Students were assigned to each action group, organizing public hearings, having a column in the Shopping Guide to bring the community up to speed, get folks to start stating their concerns. If locals believe that they have a say in the future of these lands and have some ‘skin in the game’, their input might be an attribute rather than a detriment.**

**Sophie had been eager for the weather to change so she might get together the three groups and talk after a month of tromping over the woodlot and this all downpour ‘hit the spot’. She had invited three high school faculty members to join in the discussion, Mrs. Stacey from English, Mr. Norcross from Math and Mrs. McAllister from Science. This was a Friday so no ‘in person’ classes were being taught at Sacopee.**

**Sophie:’ “So this is the first time we have brought the three teams, group A, B and C together in one room. It is possible that you already know each other but because you are from the Junior and Senior classes, I am going to ask you to introduce yourselves by answering four questions:**

**Who are you?**

**Why did you choose to take this class?**

**What has surprised you from what you have seen so far?**

**Let's start with the faculty guests."**

**"Good morning, my name is Mary McAllister and I am the eighth and ninth grade science teacher. I was born on Cape Cod and spent my youth underwater as much as I could. It is from this vantage point that I see the results of climate change and am very excited to learn more about the forest. I am very excited about this program!"**

**"My name is Jack Norcross and I am the Senior Science teacher and a friend of Sam Eastman's. There are some days when I learn more from Sam than I teach in a week. I hope to be a help wherever I can."**

**"My name is Karen Stacey and I am the English teacher for the Junior and Senior class. I too am very excited to hear what you are all learning and would be eager to help when documenting your results and recommendations."**

**Team A Corinne and Sam:**

**"My name is Corinne Sanderson and I live in West Baldwin. My family has a small woodlot on what was once a working farm. My father is a physician at the health center and my mother is a 'stay at home' mom with my younger brother and sister.**

**"I decided to take this class because I am very afraid of climate change and the pandemic and I wanted to do something to understand both better. I am surprised to see how much more I can learn from being outside with nature rather than inside in a classroom or behind a computer screen."**

**"My name is Sam Eastman. I live in Porter and my family has been in the logging business for many generations. My father has his own logging business with my uncle. My mother is also a "stay at home" mom taking care of my younger sister.**

**I chose this class because I love nature. I want to make it better, not worse, but I don't know how. I also love to hunt turkeys with my dad. I am surprised to find out how much fun I am having here**

**Question for Team A- What are the pluses and minuses about the way you work as a team?**

***Sam:* "It is a relief for me that Corinne seems to take my observations seriously. I am a somewhat private person yet as we walk through the woods I find myself pointing to all sorts of things, like deer and turkey sign, and even though she is not a hunter, we both find this information helpful to the project. Like how deer often yard in hardwood thickets, especially young growth, during hunting season if there is still leaf to eat on the trees. But I have never mentioned this theory to anyone, not even my dad.**

**“But when I mentioned this to Corinne, she said that this made sense. She also added that if they can browse off the surrounding saplings without moving, then they are safer from hunters. We found some old deer yards in pine and hemlock stands where deer had bedded down during the previous winter. Knowing hunting was over for the year and appreciating the plentiful brush to help stay warm in the coming winter, they might have welcomed these yards.**

***Corinne:* No one in my family hunts. In the past, I have only gone into the forest for a walk or a hike. Often I am more interested in the exercise than what is going on around me. Sam helped me to slow down and look around. Acorns were falling from oak trees and crashing to the ground and I had never noticed them before. In fact these trees were feeding many forest animals, some like the deer that were eating them as they fell and others like the squirrels that were “squirreling” them away safely in the pockets of dead and dying trees.**

**“All of a sudden the fallen debris on the forest floor took on new meaning for me. Sam and I would roll over some rotting branches to see insects at work in the forest soil, moist even though this summer had been very dry. Sam helped me read the forest to find our way, how branches of certain species pointed towards the south, how water always runs downhill and you are never lost if you follow a stream. And because Sam logs with his dad every weekend, he could show me what they would consider to be a healthy forest, one with a closed canopy, leaf cover giving shade to a forest soil that, this year, was crying out for water. “Our bodies are 50% water and so is this forest,” claimed Sam. “We all die with no water.” I don’t have any minuses about working with Sam.**

### **Team B Alice and Brian:**

**My name is Alice Sanborne, I was born in Fryeburg and moved to Parsonsfield when my mom was transferred there. She is an Oxford County Police officer and works at my high school during the weekdays. On the weekend she patrols this area where we all live. I am proud of her work but never assume that she will return home, on any given Sunday night, unharmed. I know that may sound depressing but that is the way it is. My dad is John Sanborn, a native of Parsonsfield, who was hurt in a serious logging accident ten years ago and is paralyzed from the waist down. I often find myself in the forest looking for answers to my life.**

**My name is Brian McCarthy, I live in Porter and was born in the Bridgton Hospital. My mother is an artist, my father a carpenter and they moved to Maine in the 70’s as part of the ‘back to the land’ movement. My dad is a veteran of the Vietnam War and living in our neighborhood has been very helpful in his recovering from combat trauma.**

**Question for Team B- What are the pluses and minuses about the way you work as a team?**

**Alice: At the risk of sounding like the poor girl, I don’t hide my pain that I sometimes feel about home life. I have loving parents. But I am never sure if I might lose them. Around where I live, there is trauma in the forest. You don’t have to look for it. Clearcuts, overcuts,**



**young trees not ten years old cut being chipped to burn for energy. Somehow I can relate to the forest's trauma.**

**I took this class because I want to find a way to make “this” all better. And I don't even know where “this” even begins or ends. Somehow though, when I am in the forest working with Brian, I feel that we are starting to make a difference. He knows it when I get upset but he just gives me quite support and I really appreciate it. I get the sense that Brian has been around trauma. But in these woods where we are working now, there is no trauma, there is no drama. I think our job is to make sure that stays the way it is.**

**Brian: My parents moved from the city to rural Maine looking for a better life. They were called ‘granolas’ by the locals back then but were always welcomed with a helping hand. My mom grew the food, my dad cut the firewood and they both raised a family. There was a small woodlot connected to the farm where a team of horses earned their pay.**

**My passion is sports. I love soccer, hockey and track. I love the physicality of it. And I love walking in the woods. What I don't love is when people put earning money above the wellbeing of the rest of us. As I walk through these woods with Alice, it is becoming clear to me that the present pandemic is here trying to give us a message. And we are not listening. That makes this work Alice and I are doing very important and I think the two of us bring to it a similar skill set to start healing the patient.**

**Team C Ryan and Katya:**

**Katya: My name is Katya Wormwood and I was born in the Central Asia Republic of Kirgizia. My country was then called Kyrgyzstan and was part of the Soviet Union. My mother is a doctor and a native of Kirgizia and I have many relatives living there today. My American born father is also a doctor and both he and my mother met while working as trauma surgeons for Médecins Sans Frontières, (Doctors without Borders) in Middle East and African war zones. I speak Russian, Kyrgyz, French and English and I went to school in those countries where my parents were medical school professors.**

**“The only trees in my native country are in parks. Only 5% of the country has forest. So it with great pleasure that I live now here in Hiram.”**

**Ryan: My name is Ryan Paulson and I live in Porter. My mother is an English teacher at Sacopee and my father lives in Oklahoma. I am an adopted child from the Abenaki tribe of Northern Vermont and Southern Quebec. My birth mother told me that my time on earth should be spent saving the trees. She told me this when I was a child. I never understood what she meant until I heard about this project. I am a senior so I have one year in this project to do what I apparently should be doing. I too speak French because my Quebecois grandmother taught all her grandchildren three languages when we lived with her during the summers, English, French and Abenaki.**

**Question for Team C- What are the pluses and minuses about the way you work as a team?**

**Katya:** Though I speak several languages as well, I most enjoy not speaking at all, especially when I am in nature. So I was pleasantly surprised on the first day when Ryan and I walked and observed and said almost nothing to one another. I was perfectly comfortable with this and so apparently was Ryan. We carried our maps and our work sheets and referred to them occasionally. But on the whole we probably said no more than thirty words the whole day. For me it worked because I could hear everything around me, including the voice of the trees, telling me what I need to know.

**Ryan:** Like Katya, I preferred the silence, although I was slightly concerned that we were failing to be more productive in some scientific way. When I step on this land, I think of other Abenaki long ago who walked these same paths and thickets, maybe built shelters from the smaller trees, fished the brooks and hunted the deer and bear. I found several pieces of flint that are scratched, most likely from fire starting. Preserving all of this seems to touch a calling that I have to know more about my people. Like Katya, I am also from a foreign land.

**Sophie** “You have all covered great ground, to be specific, 210 acres in four weeks. That is not a shabby accomplishment. We divided the 210 acre into four quadrants of 60 acres each with each team of two students working each section. The fourth quadrant will be left untouched for the present. The Hobbie Farm Quadrant was managed by Corinne and Sam. Do you want to take it from here?”

**Corinne:** “We marked all the perimeter stone wall boundaries as well as those around the original homestead. Attempting a carefully documented archeological dig, we uncovered the stone foundation of a home, barn and outbuildings as well as a 12 foot deep well that still held water. A pile of horseshoes led us to a graveyard but only children sized stone markers were left. Within our quadrants, we discovered three distinct soil types. Each area appeared to have been clear cut with the new growth fairly uniform in age, between 35 and fifty years ago. Each area had a specific tree type that responded to its soils. The most heavily cut stand was one of mature oak, with some remaining stumps over 150 years in age, while the white pine reseeded in the shade tree environment. Some of that was weevilled.

**Sam:** Because I have spent Saturdays working with my dad in the woods, I know what a good logging job looks like. Unfortunately we did not find much to celebrate about the forestry on this site. Some of the oak was cut leaving a three foot high stump on the ground. Maybe this was a result of heavy snow that winter. However it enabled us to get us some good age calculations by measuring their diameters at breast height. There was a lot of carbon stored in those trees when they were cut.

**Corinne:** “I was touched to see how upset Sam was about something that occurred at a time well before he was born. There were a few Heritage Trees, all rock maples, guarding the main foundation, some over 200 years of age and in great health. We asked Mr. Durgin to visit the site and he said that it was the Clarence Hobbie Family Farm , distant relations to his wife. He knew that the lot was cut by a New Hampshire company named Kennett, all

with out-of-state crews, back in 1985. Mr. Wormwood checked his father's records and Mr. Durgin's memory was right on target.

**Mr. Norcross:** Sam, did you and Corinne do any carbon storage calculations of the Hobbie Farm?

**Sam:** We did find some old growth with very decent carbon storage capacity and a lot of thirty to sixty year old stands. We set up a few 100' square plots and collected the data. But I think that Ryan and Katya might have more accurate information to share.

**Katya:** Good morning Mr. Norcross and thank you for joining us today. First I want to mention that my understanding of the science of estimating carbon in forests requires us to keep in mind that the end result is an estimate, no more than that. For folks like California Cap and Trade to pay for our carbon, they would require a higher quality of estimation than we would provide but Ryan and I did start the process.

**Ryan:** "So the 60 acre quadrant where we worked was in the northeast corner of the woodlot, a multi-aged stand composed of hard and softwoods. It was last cut about 40 years ago. Our goal was to estimate how many tons of carbon that stand was storing. We want to emphasize the word "estimate". Carbon calculation for payment is almost always based on an estimate.

"Our first work was to create a 100 foot square plot and measure all the trees in that plot. So Mr. Norcross, maybe you can check our calculations.

*"100' X 100' plot = 10,000 sq. feet in the plot. There are 43,560 square feet in an acre. So roughly speaking there are approximately 4 plots per acre with the 60 acres of our quadrant comprising 240 potential plots.*

"By measuring the diameter of each tree in the plot and determining the species, we were able to estimate a single plot's carbon storage, tree by tree. We tagged each tree, wrote down its amount and added any additional information, like if it were ill, damaged, or had a compromised canopy. Species in this plot consisted of white pine, red oak, beech, white ash and red maple. The smallest diameter we measured was 4.7 inches, a red maple, and the largest 21.25, a white pine. *The total carbon stored in that 100 ' square plot, including the trees' canopies, their trunks, their branches, their roots and soils, was 14,553 lbs., a little over seven tons.*

**Katya:** "Today's market for carbon is roughly around \$14.00 per ton. So, on our first trial plot, the carbon might bring 7X\$14.00 or \$98.00. That price would not even begin to cover the cost of two people working approximately four hours. But if we looked at the entire 60 acre quadrant which has four plots to the acre with a total of 240 plots, all at once we have a dollar carbon storage value of \$23,520. Multiplying that amount by the four quadrants of this forest property, that would earn you \$94,000 worth of stored carbon.

**“The next step will be to most likely utilize a ground based Lidar measuring device that will film the canopy but we have yet to find someone who can teach us how this works.”**

**Sam: “And it is important to understand that any company like California Cap and Trade requires secondary and tertiary verification carried out by their own licensed personnel. We have a long way to go and a lot to learn.**

**Alice and Bryan:**

**Bryan: My thoughts of the quadrant we covered were mostly focused on the number of regulations these loggers abused. Twitch trails going across and diverting brooks, stone walls pushed aside, tire ruts everywhere. My dad loves the outdoors. If he had been here at the harvest, I am not sure of what he would have done. I do know it would not have been pretty. But we have come a long way as a family and somewhere on that path, we discovered how the forest can help us heal even the most deeply felt trauma.**

**Alice: Before I begin my report, there have been several side issues that have come up for Jim and I that we feel need to be addressed. Is that ok?**

**Group response: Yes!**

**Alice: Mr. Wormwood, is your goal to store more carbon in the forest a financial objective or an environmental one?**

**Mr. Wormwood: Yes on both**

**Alice: “In our quadrant work , Bryan and I have been labeling trees exclusively for their carbon storage, regardless of other unique qualities they might contribute. Say with the Eastern Beech, “*Fagus grandifolia*”, (please excuse my pretension. I found the Latin name on line), all we are hearing about it from the forestry community is ‘invasive species’, ‘bark disease’, ‘low quality fiber’. There is nothing about its long history in New England and its nuts that are essential to our deer population. So they don’t make the cut. And what is most upsetting is that they propagate in the worst logging scenarios. Mr. Durgin told us that when he was a boy 52” beech bolt wood brought a premium at Kearsarge Peg in New Hampshire. The trauma that it is exhibiting today is the fault of the forest industry. Beech is working to save the forest, not injure it.**

**Sophie: Thank you Alice for bringing that up. That was a major critique of mine in my senior thesis.**

**Bryan: “Cash income from capturing and storing carbon seems to be the up and coming new economic force. If the implications of these goals are accurate, how do you propose the men and women in our local logging based economy are going to survive? My folks are in their mid-forties. In the coming years will they be forced to give up driving polluting diesel semis and biomass feller bunchers and arrive at work with a diameter tape and be paid**

**\$7.00 to \$9.00/ hour. I am afraid that until we address a serious set of local prejudices, we will find ourselves at the losing end of this stick.**

**“My father and mother know many logging families who are questioning our program’s agenda here on the Hobbie Lot. So Mr. Wormwood, are you expecting a pushback? You are one of the largest private landowners in the State of Maine and may have access to money that others do not. Thank you for listening.**

**Alice: Mr. Wormwood, I love this work that Bryan and I are doing. I believe that it is essential that it be recorded and reported. Just to close, my mom is a policewoman and also a pilot. Sometimes she takes me with her at night, flying from the Limington Airport east towards the ocean. I absolutely love flying. But when she hands me the stick, turns off the cabin and instrument lights and says , ‘Just feel your way, listen to the engine and you will be fine,’ I am absolutely terrified. That is what I feel about this work, a combination of love and terror.”**

### **Hunting in the Rain**

**That same afternoon after school, Sam, his dad Mike and Uncle Herb were out hunting for turkeys.**

**Herb:” So Sam, what’s all this talk about measuring trees. You know I worked on Wormwood land when I was your age. That was after he died. We cut logs, never paid stumpage ‘cause there was no one to pay. Some New York lawyer was paying the taxes but I guess they could not find a next of kin.**

**“Hell, God grew those trees so Mainers could put food on the table. It don’t seem right to just have them sit there. And the more we cut, the more they grew. Hell Mike, you and I cut with dad back in the 50’s over on Wormwood’s land in the Burnt Meadow Mountains and he never paid stumpage. You remember?”**

**Sam looked over at his dad who looked out into the forest.**

**On the following morning, at my farm on the Porterfield Road, there was another small gathering, this one called by me spontaneously at the end of yesterday’s session. Yesterday I had been deeply shaken by Alice and Bryan’s concerns. I had known all along that it was inevitable that carbon credit payments would increase in value as the climate crisis and the pandemic kept knocking at the door. Along with substantial cash payments for participating landowners, one consequence might be end of the Maine forest products industry as we know it today.**

**I had volunteered to host the gathering and asked Alice and Bryan to attend. Alice had a car and said she would drive any of the group who needed a ride. Several of the teaching staff as well as Sophie said they would try and come.**

**Yesterday's rain had stopped as our group crossed the Ten Mile Bridge behind my farm and now we made our way up the hill. We all were wearing masks. We stopped at the clearing where I had first met Bill and Titus.**

**“Thank you all for coming at such short notice. I realized that next Monday, there would be no school for Indigenous Peoples Day. I just felt that what came up yesterday at the theater just could not wait five days to be addressed. Please enjoy the short logs that have been strewn around on which we might sit.**

**“It is a special pleasure that Sam brought his dad Mike along who helped me skid logs from this very site when he was your age. If your parents are not involved in the controversial conversation we are now beginning in the Forest Carbon Project, perhaps it is time to invite them in. I met Bill Wormwood six weeks ago on this very site as well. I've been told that sometimes I talk too much so I am going to ask Bill to say a few words first.**

**“Thanks Pete. Some of you may know that my Tatyana and I are doctors that have worked primarily in war torn areas for the greater part of our medical career. I hope you all have a chance to get to know her. She is an extraordinarily compassionate person. Over the years she has reminded me that when bad news comes down the pike, it is often the messenger who is the first to suffer. Some of you here have been in harm's way and have survived. Others in your community have not.**

**“It may seem a bit pretentious that I should even be talking about your families and friends as I have just come to live amongst you. But I have a feeling that my father had a profound effect on your community, perhaps not always for the better. I met Peter early in July on this very spot and we could not stop talking. I am going to ask him to tell you about that conversation because it may be the thing that saves the messenger as well as the rest of us.”**

## **Saving the Messenger**

**Peter begins: “I am glad that Sophie is here today because she represents for me in many ways the future of the forest and the community that depends on its health for its survival. She graduated three years ago from the UMO School of Forestry and is now the service forester for our district. When I look at her, listen to her and see her interact with others, I see a brighter future.**

**“About a year ago I had an accident and had to stop working in the woods. I thought I could not survive putting the saw to bed and my team Willie and Nick to pasture. But instead of lying down and dying, I made my way to this very spot and began redefining my relation with my forest. I could still walk; I could still see and lift a tape measure and a hammer.**

**“So, like our Forest Carbon students have done this fall, I wrapped my tape around these trees, nailed a small numbered tag onto their trunks and wrote down an estimate of how much carbon (CO<sub>2</sub>) each tree was safely holding in its bole, branches, leaves, roots and soils. The third tree I measured that day, the white pine we are now standing under, was storing**

**enough carbon to offset the greenhouse gases my 2017 Subaru would emit on a trip from Maine to Los Angeles and back again. I was shocked! And the tree was 110 years old and still growing. This gave me a new outlook on life.**

**“Humankind has yet to invent anything as efficient or cost effective as the forest to capture and store these deadly gasses. The pulp and paper industry is not interested in hearing any of this because it is not in their financial interests. I have heard them argue that it is their social responsibility first to employ all us Mainers regardless of the environmental consequences. It’s our own fault if we breathe the air and get sick.**

**“But things are slowly changing. Forestry professors are taking a stand on the future of Maine’s trees. The men and women of the state’s forest service are working hand in glove with the Maine Organic Farmers and Gardeners (MOFGA) on what the upcoming century’s woods will look like and who will do the work.**

**“To that end The Forest Carbon Project has begun talks with Southern Maine Technical Institute and Unity College, suggesting that they offer a special two year Forest Carbon Technician degree. Rather than cutting down trees, these graduates will measure trees and the forest soils to ascertain their ability to capture and store carbon dioxide, to test the water in the brooks that supply the groundwater for our cities and villages, and to guarantee that wildlife continues to enjoy a vital and thriving environment that no longer will be cut down around them. These graduates will work alongside our licensed foresters, helping them with their measurements and computations. But they will assist landowners as well with the complicated process of filing for and being rewarded with substantial capital for their carbon management programs.**

**“Some trees may still be extracted but not because of their value for the building trades or any one industry. They will be sacrificed because, by their removal, they will increase that specific forest’s ability to mitigate climate change.**

**“And who will benefit most from this change in direction?” Bill asks, eager to share the answer. “Many jobs will be needed and as the environment worsens, demand for these skills will increase. It is your generation that will learn to manage this technology. Satellite photography, Lidar, drone measurements, all these systems will become common and necessary for us to win this war.**

**“There are several properties I am selling to finance this project, to cover upfront tuition and technical assistance. These properties are unfortunately no longer able to grow trees but, if used wisely, can be of benefit to the larger community. As you might imagine, a doctor working for a global non-profit in war zones does not make much money. And that it true. But it does allow me the opportunity of my telling an interesting story, also about money.**

**“Growing up I never did get a chance to get to know my father well. He worked his way up the ladder to own a multinational pulp and paper company based in Canada. I was sent off**



to a boarding school, in fact, not too far from here and learned firsthand about the magic of Maine and its forests.

“My father made a ton of money but what he did with it was rather unusual. He would send his folks to the rural towns that surround us, Porter, Hiram, Baldwin, Parsonsfield and Cornish to name a few. And these men would buy the land that was up for back taxes with my father’s money. This was in the 50’s and farm and forest land was selling for a pittance. The towns benefited because he balanced their annual budgets. But hundreds of families lost land that they had come to count on to weather hard times.

“So now isn’t it a bit ironic that this money is returning home. And how could it be better spent than training local folks to heal the land and its forest? This will be the work of this new generation of Forest Carbon Technicians, helping the forest and its environment to mend past injustices and keep future pandemics from the door.

### **Crew Meeting**

The Monday after Thanksgiving break, Corinne asked for a one hour meeting at the theater before heading to the woods, no adults, just students.

“I hope that it is ok with everyone that I did this but we don’t get much of a chance to just check in with each other. Maybe we could take the time to get stuff off our chests if we need to.”

Silence followed. They could hear the traffic slow down for the stop sign, hear the logging trucks gear down, a dog barking across the street. Someone will begin, Corinne thought, when it is time.

Alice gave a quiet cough and began. "I wish the boys would stop treating us girls like girls." Chuckles.

"I've got two young sisters and a mom to be with every day," Sam began. "Girls are a mystery to me." Group laughter suddenly broke the silence.

Corinne smiled and waited. Ryan then began.

"I think that all the members of the teams have shared the work equally. Maybe the boys tend to hold back in the meetings because we are traditionally seen as socially less developed, the girls more intelligent. But I don't agree with this perspective. I think our teams are working well. Does anyone disagree?"

Again silence.

"I have something I would like to bring up, if it is ok with the group," Katya said.

"I feel a bit like I am in an awkward position. After all, it is my dad who owns all this land, who is not a local, has come up with this outrageous plan that affects all your families. It makes me reluctant to suggest new ideas because in the short and long run, it may have more a profound effect on your future and less on mine."

"I think that most people feel that I, Katya, that nice colored girl from a foreign country, will graduate from Sacopec, go off to some Ivy League college, marry a handsome lawyer in New York City and maybe come back to Henderson Hill with her children for the summer holidays. We might see each other in the stores or at the beach, maybe we watch our children swim and then say goodbye till next year. That is if you are all still living here. Maybe you had to move away to find a job.

"I don't think I could have this conversation with anyone else outside of this group. You are the only friends I have. Russian is my first language and Kyrgyz, my second. I am also bi-racial and my ancestors were Mongolian. Think Genghis Kahn. So when the shit hits the fan, you all might wonder if I was the best company you should have been keeping back then." Silence

"Talking about when the shit hit the fan" Brian began, "come over to my house and meet my dad. He grew up a Boy Scout, couldn't get out the door fast enough to kill those "gooks" in Vietnam. He came home with a bullet through his spine and memories that keep him company each night. This fall he dragged himself to the Portland Arena to greet immigrants from Africa and the Middle East who were running from the same nightmares he has. I am often up with him in the dark hours and we have these great conversations.

"Some of what he is talking about at night is the same stuff that you are talking about, Katya. How do we know that what we are doing is right or not? But no matter what, the first thing we need to do is what we are doing right now, talking about it with each other."

**Corinne: “Ok, this is what I had hoped might happen. The bus will be here soon but I want to ask Katya what she sees as the first piece of shit that might hit the fan.”**

**Katya: “Well, the school board, for all the best reasons, is trying to site a solar farm that would provide all the power needed for the elementary, middle and upper schools. Most of the school’s property is covered with the existing buildings, playing fields and parking lots. It turns out that the only place to put the array is in the school’s pine forest. Those trees will be cut over my dead body because that pine forest is an excellent carbon sink. Any thoughts?”**

**Alice: Well, I know the school committee and there are folks there that depend on pine logs for a living. But they are all well-meaning people and it might be a good way for us to get our feet wet, to start explaining and defending what we are up to. So what if we meet there in the pine lot on Saturday and I bet with all of us we could tag and calculate the carbon in a few hours.**

**I was on Akmatov's sheep farm in the foothills of the Tien Shen. You could see Lake Izzykul in the distance on a clear day and China beyond. Ten young men stood in well-worn army fatigues, veterans of the war with Afghanistan, a few of them barely older than my children. My friend Jamilya was translating.**

**"OK, my name is Peter," I said in Russian hoping some might speak it. They only smiled after Jamilya translated into Kyrgyz.**

**"Today I am going to introduce you to the shearing technique we use in the States. We will be using Australian electric hand pieces, not your manual scissors." I then walked to a nearby pen where one of the young men was holding my first victim. I started the generator, seated the ewe between my legs and began shearing.**

**I worked at half speed, taking time to explain every position. I did not stop till the ewe was lying comfortably on one side, patiently awaiting my next move.**

**"This next move is called the long blow. You place your cutters at the base of her spine and, with one long stroke, you gently bend her like a bow and run your cutters up her spine, her neck, her ears, stopping when you reach between her eyes. This blow, if done correctly, will show others that you know your stuff." Everyone was paying attention but who was I kidding, this was advanced technique and I was just showing off.**

**The boys were from Jamilya's village so she called Dima to get the first sheep. He entered the pen and with grace, bent over and picked up a 100 lb. ewe and gently laid it down on the shearing platform. Then, just like I had done, he switched on the hand piece and began shearing. Every blow was on target, the wool fell like snow and when he reached the long blow, he leaned over like a stage performer, thanking his audience with outstretched arms and, with one stroke, did the long blow perfectly. When finished, he shut off his machine and gently escorted the ewe back to her pen.**

**To say the least I was in total shock. I looked at the group and said in Russian "Как это возможно", 'how is this possible?' They all broke out laughing, a happy laugh, in no way making fun of the situation. They spoke then in Kyrgyz and Jamilya translated. I can't remember what they said exactly, something about an Australian shearing crew recently selling them new gear and spending a week teaching them how to use it. Their expression as the truth unfolded was delivered with an innocent and engaging smile. I saw the same innocent and engaging smile tonight on Katya's face as she stood before the school board at their monthly meeting.**

**"Thank you for inviting us tonight. I know you are aware of our forestry work and that you support it. We are grateful for this. Perhaps we are here too soon before you with another request. Our primary focus is on climate change and the role trees play in the capture and storage of greenhouse gasses, primarily carbon dioxide. Recently we were made aware of your admirable efforts in siting a solar array in what is now a five acre pine stand. One plan you are considering is cutting down all these trees for the installation of the panels.**

**“For the past three months we have been measuring the carbon in trees in a 260 acre woodlot in Hiram. So it was quite easy for us to take our tape measures and calculators and determine what your pine trees here at school are capturing and storing. The amount is 126 tons, enough to offset the pollution of your bus fleet for one school year. This is doing nothing to the pines except letting them grow.**

**“In addition, there are three trees by the Ossipee River embankment that are over 180 years old. They were saplings when the indigenous peoples of the area fished and camped along the water or the slaves fled north to Canada before the Civil War. As our team member Alice pointed out, what else is alive today that saw this? We ask that you take into consideration this information as you decide the fate of these pines.**

**“Thank you for your ongoing support for our climate work and we welcome you all to join us at our worksite. It is going to get even more exciting when it snows.”**

**\*\*\*\*\***

**School board members and lifelong friends Betty Snowe and Barbara Concetto ran into each other the following Monday at the chips and dry cereal aisle at Hannaford’s Grocery. Barbara was looking for fat free tacos and Betty a cereal for her youngest.**

**“I wish we had a chance to discuss that issue of the pine forest and not had it postponed till next month,” Barbara began. “We could cut those trees down in one day and get a dozer in there to prep for the solar array before freezup.” Barbara’s husband drove a pulp truck to the Rumford paper mill twice a day.**

**“Well I was pretty impressed at the skill set and interest those kids are developing around global warming,” Betty threw in.**

**“Climate change, global warming, whatever,” Barbara shot back. “What do they know about what’s really going on? Heck, that Revision Energy quote for the whole solar array was reasonable. Plus the faster those trees are gone the better. No more dead branches for the grounds crew to cleanup in the spring, no danger of those trees falling and hitting a building.”**

**“Oh hell Barbara, those trees have been standing there since before you or I was born. I know you think that the only good tree is one that is cut down. But it’s those girls’ generation that is going to feel the heat, not ours.”**

**And with that, Betty asked her childhood friend what she thought of the sugar free Junior Jump Ups she was holding and the conversation moved on.**

**But later, when Barbara was walking to the car, she wondered if the community where she lived would choose cutting the forest over the ever widening concern for the environment. This was the fifth summer that drought ruined the corn and hay on her family’s dairy**

**farm. And with the forest as dry as it still was, it has been a miracle that Cornish had not had the fires like California and the northwest.**

## Leave us Alone

That same Monday, four days after the board meeting and one week away from Halloween, the carbon crew was greeted by a spray painted sign on the front of the theater. "Leave us alone" it said with two foot high red letters. Sophie suggested that we call the school principal and within a few minutes Brian arrived with Alice's mom, Officer Sanborn, in her Oxford County Sheriff's car. As they stood there all looking at the sign, Katya knew the push back had begun. Back home in Bishkek, protest signs were written on walls in Kyrgyz, not Russian, just to irritate those in power. They were always torn down within a few hours.

"This comes as no surprise to me," Sam interjected. "I'm amazed it hasn't come sooner. My uncle sees our work as a threat to his income. If this carbon payment is real, then other landowners will choose it over the local wood products' market. He says that a lot of loggers are talking about this. With the Jay mill closed due to the explosion last month and biomass on its way out because of record low oil prices, these folks have a lot to worry about." Officer Sanborn saw destruction of private property when she looked at the sign.

Corinne then had an idea. "Ok, so people in town are worried, not just about our plans but about lots of things, the economy, the Covid, the presidential election, a lot of things. What if Silas agrees to let us erect some 4X8 sheets of chalk board facing the street and we encourage people to tell us, in their words and on these panels, what they are afraid of and how we can help? It would be a place where folks could anonymously get the stuff off their chests. Then we could rent a page in the shopping guide and answer their concerns. If Silas is ok, then we leave the spray sign up as well for everyone to see."

Silas was ok with the plan and so were Brian and Officer Sanborn who stopped at the theater every morning to photograph the comments on the newly erected billboards. At first they was just graffiti and election posters but that was soon replaced by comments like "trees live and loggers die" and "outsiders are calling the shots" and "who the hell do you think you are?"

In English class Mrs. Stacey helped them write a reply for the Weekly Shopping Guide. All student responses were respectful and well written. Several students even chose to include their names and phone numbers. They named the column "Our friend the Forest."

"Thank you all for taking the time to reach out to us at the Kezar Falls Theater," they wrote. "We welcome your thoughts and concerns and look forward to opening a dialog. We are members of the Junior and Senior Class at Sacopee and we are learning a set of skills

that will help us to better understand the role the forest play in our lives, today and in the future. Some of the concepts in our classes are very new and challenging.

“Like any new thought or idea, it can be seen as threatening. Please feel free to write us at [www.ourfriendtheforest.com](http://www.ourfriendtheforest.com) and tell us what excites or worries you about what we are undertaking. You parents have taught us that without the clean water in the forest brooks the fish will die, without clean air the deer and bear will leave and without the rain no new trees will grow. The forest is our future. This is why we are so excited to have it as our new classroom.” The responses were not long in coming.

The website senior Sarah Brenner designed allowed for folks to add comments anonymously. They first chose names like “mushroom gatherer”, “river fawn” and “screech owl” but by week two “SOB’s”, “glass pack’ and “over my dead body” checked in. Their concerns fell into three categories, “climate change deniers”, “great work, keep it up” and “how do we put food on the table if we stop cutting trees.” “The class has turned into a newsroom,” Mrs. Stacy said, clearly excited. “We don’t have to watch the election; we’ve got enough to deal with here.” Later that afternoon Ted Gammon, an uncle of one of the students on the project and a local and respected logger, blew his brains out. Some people started suggesting that he was the first obvious casualty to “shutting off our forest”.

While the Shopping Guide was getting phone calls demanding the exchange stop, Officer Sanborn was checking all cars entering the school’s parking lot and by week four it was decided that the names of the student writers should be kept anonymous. As Election Day approached, it seemed the Shopping Guide letters, both student and community, became more personal, more honest, in spite of all the acrimony on the news.

Monday morning discussions at the theater were taking longer as more and more folks from the surrounding community were expressing their views in the Shopping Guide and the students were discussing them and responding. Sam was exasperated that there could not be some kind of community forum where folks could process their stuff out in the open, together. But Brian the principal insisted that Covid guidelines did not permit such an activity at school. That is until Silas came up with an option the first Wednesday after the election.

“What if we all gathered in the high school parking lot one evening,” he asked, “but everyone staying in their cars? I drape a large screen from the art rooms on the school’s third floor. We set up a small stage on ground zero with a microphone and a camera that projects the speaker’s image up on the screen. I also have an audio system where everyone can turn their car radio to 91.9 FM and automatically listen to and watch the folks speaking at the podium. At first we have a few students to welcome everyone but then we open the stage to the public. Folks stay in their their cars and listen, a few get out and speak, then drive home.”

Everyone at the theater that Monday agreed that this was a doable idea and planned it for the Saturday after Thanksgiving, November 28, as long as the school agreed. Some wondered if anyone would show up, if anyone really cared. Officer Sanborn said she would



be present, in uniform and checking that masks and social distancing would be required for everyone. “No mask, no entry, no matter what our president says.” She also mentioned that no weapons would be allowed on school property even though Maine was an “open carry” state.

Carbon work was continuing in the forest with students and instructors dressed in hunter orange and happy to be “back down to business”. A graduate student from UNH School of Forestry visited with a week-long demonstration of how LIDAR’ “Light Detection and Ranging” worked to measure forest carbon from a drone flying high above the Hobbie Lot’s forest canopy. Students were very excited to use this system to see how their carbon tallies from their random plots and tree diameters would hold up against the ‘machine’ as they affectionately called it..

Jack Ryley from UNH was near enough in age that he kept the scientific jargon down and activity up. The drone itself was a big hit. Mounted alongside the LIDAR equipment was a small video camera and students were able to undertake the take offs and landings. Now that the leaves were off most trees, stone walls, brooks and streams were now visible and students could pick out their individual areas of work on the monitor. Most data was stored in Jack’s computer to be analyzed back in the theater. Occasional gun shots could be heard in the distance but No Hunting signage and common knowledge kept the project area safe.

## The Big Show

Election night came and went or did it? It would take weeks before all votes were counted and as the students finalized the plans for the high school event, it seemed as if tensions grew rather than lessened. Pickups flying Trump and American flags still roared past the high school and the theater but thankfully there was not violence or property damage at either location. The weather remained unseasonable warm and it was decided that the final “Your Weekly Shopping Guide” would carry its last two page ‘public comments spread’ the Wednesday before Thanksgiving. The owner and editor deferred payment for the previous month, citing how the paper had gained much more in new accounts than in any expense involved in “Our Friend the Forest”. “It was a great exercise in democracy,” they went on. “And God knows we need that more now than ever!”

The Friday before the “Big Show”, as it had begun to be called, Bill and Peter invited all the project parents to a meeting in the theater, again with masks and also sitting at least eight feet apart, which was now no problem because we were in the main hall. A microphone was set up on the stage and behind it sat all the high school students and the forestry staff that had assisted us over the fall. The popcorn machine was popping away and sodas were by the entry door. By seven o’ clock everyone was seated and uncharacteristically silent.

Principal Brian began.

“Thank you all for coming. Up here behind me are our Forestry Carbon Project students and teaching staff. As you look around the room, you will see their parents sitting next to you.

“I would like to start by thanking Silas for inviting us over three months ago to use this theater as a base. And also kudos go to the Shopping Guide where the graffiti on the front wall of this building, *group chuckle*, was allowed to more fully develop in the pages of their

**paper. Over three hundred Shopping Guide readers accepted the invitation to create a constructive dialog that will hopefully culminate in a positive vain tomorrow evening.**

**“I would like to say how proud I am of the students sitting behind me tonight. As you know, I too have children, albeit somewhat younger. Our children will be the ones who will face the consequences of climate change and global warming, no matter what or who is causing it. As I am sure you aware, this conversation has not been made easier by the contentious election hopefully coming to an end soon and by the pandemic. But I have invited you all here tonight to say first how proud we are of your children. But tonight, no matter how long as it takes, we would like to hear from you about your concerns. Please ask any of us up here any questions you have.**

**Silence followed for a good while. The stage was lit but the parents in the audience were in darkness. From there came the first question.**

**Question 1: How safe will we or our children be tomorrow evening?**

**Officer Sanborne: I think most of you know me, I am an Oxford County Police Officer and I work at the high school. My daughter is up there on stage. Security will be high at the school. That is an order from the county, not from the principal’s office. Entrances to the Middle and Elementary Schools will be closed at 5:00 pm Saturday and kept closed all night. Entrance to the high school will be limited to one gate closest to the tennis court. There will be one Maine State Police Officer and one from Oxford County until the last guest leaves. There will be a pull off area for searches, both for weapons and alcohol. This degree of scrutiny is normal only when there is a potential threat. Obviously I am as concerned as are all of you but I think that the safety will be extraordinary.**

**Question 2: Who will moderate the event, who can speak and for how long?**

**Principal Brian: I will be the moderator. One person can approach the microphone at a time. And I have a remote shut off to the mike at my disposal. I will begin by outlining the topics to be discussed and not tolerate a departure from that topic. Each person can talk for no more than four minutes. The event starts at 4:00 pm and ends no later than 5. Car lights will be used if necessary to illuminate the stage. Silas and a camera crew will project those persons speaking up onto a larger screen hanging on the west wall of the school for people in their cars to view.**

**People will sign up to speak starting at 3:30, first come, first serve. I will call people to wait their turn as weather may require folks to stay in their cars until their name is called. This format will not allow for dialog. If the speaker has a question, several resource people will be present. Bill Wormwood, Mike Eastman, Corinne Sanderson, and Brian McCarthy may answer very specific questions. But no debating.**

**Question 3: Why have this event in the first place? Won’t it just incite an already fired up situation with Trump/Biden and Covid?**

**Pete:** We will do everything not to create a divisive atmosphere. But here we are with a President who can't win reelection refusing to admit this reality. What concerns me more is the woods products market that is collapsing due to lower housing starts, the decline of pulp and paper markets due to the Jay's mill explosion and the closing of wood to energy, biomass plants. Bill's land has been out of the market for over thirty years so loggers would do well to recognize that it is the markets that are shrinking, not their access to the forests. But when folks are angry about something they can't do anything about, like straighten out Washington, they pick on something in their own back yard to beat on.

**Question 4:** So what do our children look forward to after high school if they want to stay here in Southwestern Maine? Where are the jobs where is the financial security that forest products have brought us, albeit not always dependable?

**Student Mat:** Right now we students are learning about a whole new way to be in the forest. Thanks to JMG (Jobs for Maine Graduates) I have a daily income and, at the same time, am making our forests, their streams and their soils healthier. Trees are the #1 tool to safely and most efficiently store the greenhouse gasses that our cars and trucks emitted as we all drove here today. The new administration in Washington will almost assuredly restart financial rewards to folks that support this natural system. Documenting the data that is required to receive Carbon Credits will require a Maine workforce much larger than today's woods product industry.

Most of you know that, no matter what the weather is doing outside, I chose my bicycle as a way to get to school. It is not because I love to ride in the slush and get splashed by passing cars, it is because I want my children to breath fresh air, see me as an example, and live in a time when Covid is just a distant memory.

**Bill Wormwood:** "Just to add to Mat's comments, my long term plan (4-6 years) is to establish a non-profit corporation in the form of a Land Trust. It would include all of the 250,000 acres of woodlands I inherited on my father's death. For convenience sake, let's call it Sweetridge Land Trust (SLT). It would have as its board of directors local folks like you who would make all the decisions, both financial and environmental. Income from this land would come in two ways, from the carbon that is being stored in its trees and soils and from the fiber that is extracted to maximize carbon capture and storage.

"Yes, extraction. That means logging. The forest that grew unmanaged for thirty years after my father's death is a forest in recovery, working overtime to survive, not necessarily to prosper. Most of you that are my age might have heard from your parents that during the Depression, a young man, hungry to succeed, traveled all over this region, buying land cheap that was up for taxes. This would have been my father. Towns like Porter used his money to fix roads and bridges but many families, maybe yours, never recovered from the loss of their farm or forest lands. Today your students are studying the health of these trees in recovery, their trunks, roots and soils. To maximize the prosperity of these forests to capture and safely store CO2, we would only extract those trees that are inhibiting this process.

**“Let me emphasize that our teams will use a very different set of extraction guidelines than those of the past. There will be markets for this fiber but they will no longer be the driving force behind our work. It is my dream that if your school board agrees, next fall we will offer an academic major for the Junior and Senior class called Forest Carbon Technician (FCT). You students here today will write the curriculum for that major. Upon graduation you will be eligible attend a two year FCT degree at either SMTC or York County Community College. Four years from today you will be authorized to partner with a consulting forester and your salary will come from the various Forest Carbon Markets that will be hungry to buy credits by that time.**

**“Employees of the not-for-profit Sweetwater Land Trust will be paid by the hour, not by the day or the cord. Insurance will be provided. The Sweetwater Board will be responsible for raising funds to cover the overhead of the daily operation. All employees will be required to attend a monthly meeting to guarantee transparency of the methodology we use and the decisions the board is making.**

**“Personally my commitment to this project is not founded solely in its environmental impact. Rather, the irony I enjoy is the money that will filter back to the very community from whence it was stolen years ago,.**

**“I have talked for longer than I had hoped. I am sure there are questions but we are running out of time. I welcome you all to tomorrow evening’s meeting.”**

**Dr. Bill**

**Wednesday morning news on NPR: Michigan confirms the vote, Trump refuses to concede, three million travelers hit the airlines in spite of government warnings of a drastic Covid spike.**

**More local news: Positive Covid in school teaching staff closes the elementary school until further notice. Maine’s positivity rate reaches an all-time high.**

**The day before Thanksgiving opened bright and cold but with little wind. Silas and his crew arrived early to set up the screen and test the sound system. All entrances and exits to the Elementary and Middle school were closed by noon by State and local police on Officer Sanborne’s orders.**

**By 3:00 pm traffic was backed up to 120 Ice Cream and the school’s main gate finally opened at 3:15. Everyone was handed a cheat sheet going over how the evening would work and asking them to now turn their car radios to 90.7 FM so they would hear the microphone on the podium clearly. All went smoothly until a live turkey escaped from a Ford pickup’s front seat and an axe and chopping block was found on the pickup’s floor. The driver was asked to leave.**

American flags and Trump and Biden signs were allowed in as long as they did not obstruct the view of others. The parking lot was quickly filled by sixty cars and the overflow was allowed out on the cross country track because the ground was frozen. The gates closed at 4:00 with folks parking on Ted's hay field across the street or by the side of the road. Many offered these late arrival folks into their warm cars if they were wearing masks. The atmosphere seemed congenial. Covid had shut down so many gatherings over the fall and people were desperate to be close.

At 4:05 Principal Brian stood on the podium and waved to the guests.

“Can everyone hear me?” A round of honking became the virtual handshake.

“Welcome to you all tonight and Happy Thanksgiving. I want to thank all the people who worked so hard to make this event happen. I also want to thank the Shopping Guide and the Kezar Falls Theater for the part they played in this educational process. I hope you are all comfortable and can see me and the screen.” Again a cacophony of horns.

Brian then goes over the guidelines for the meeting. “People will line up to the right of the stage. They will have two minutes either to make a statement or ask a question or both. The four individuals standing behind me will respond with an answer. Doctor Bill Wormwood, local woodland owner, Mike Eastmen, local farmer and logger, Corinne Sanderson, and Brian McCarthy, both from the Senior Class here at Sacopec. The event will end in one hour at 4:05. There will be no debating. I have the shut off to the speaker's mike.” Again a round of honking.

“Why don't five people line up now and the rest stay in the car as it is cold out here? If it gets dark, we have your lights.” Many headlights turn off and on in reply as several folks made their way to the podium.

“Dr. Wormwood, my name is Doug Brown and my brother and I run a timber trucking business in Porter Village. What are your intentions for harvesting the land you apparently have inherited from your father? My livelihood depends on whether there is a supply and a market for local forest products so what you are planning makes me very interested.”

“Thank you Mr. Brown for coming here today. ....” and Bill went on in the remaining 3.5 minutes to describe his goals for returning to this community to live.

Back on the last row of cars a man is sitting with his wife and high school daughter and he begins to shake.

“Jack,” his wife calls as she takes his arm. “What is it?”

“Cathy, I know that voice, I know that accent, he's not from here. It's like European, maybe Canadian. I know that voice, I just can't place it.”

“But can't that be OK, can't we just sit here and listen. He is saying good things.”

**“Yes, I agree, I will try and stay still”. And he did stay still but he was no longer in the front seat of his Toyota. He was now in the dark. He had lost any sense of where he was.**

***“Kif hallik?” he heard from across the room. He knew it was Arabic. “Qua-ic” was the reply. He could smell rubbing alcohol and in the distance a helicopter was approaching. He had dreams before about war but never this specific. And in the distance he also heard a voice in English speaking about trees but that made no sense.***

***“It’s time to go Sargent. The last chopper of the night is here”.***

***“No Doc, not without you.”***

***“I must stay, out guest cannot move now or he will bleed to death.”***

***“But he is the enemy Doc.”***

***“He’s not my enemy, he is my patient.”***

**Then the light comes back to the car and he knows where he is and what he needs to do. He reaches over and picks up his right leg and moves it into a more comfortable position. The meeting continues, there is very little controversy until almost the end when a logger from Cornish calls Mike Eastman a traitor and Bill Wormwood an opportunist who ‘has returned home to make a fortune at the expense of the local population and their children.’**

**Car lights go on and horns honk and people start to get out of their cars. Cries of “No More Bullshit” and “Give it up” are thrown back and forth. Police lights turn on. It was then that everyone turned to see Jack Sawyer from Porter, dragging his right foot along behind him on his way to the podium. Several people jump out to help him, others think he is going to attack the speaker. Officer Sanborne moves to intervene.**

**“Who is this” Bill asks the principal.**

**“His name is Jack Sawyer, a local and highly decorated Marine who was wounded in Afghanistan. He was captain of the Sacopee Valley football team and class president. Most people are too old to know his history, including Officer Sanborne.” Just then that Bill heard his name called.**

**“Dr. Bill,” came the call from the man hobbling toward the podium. “Is that you, back from the dead?”**

**People milling about outside their cars all of a sudden realized they were missing the audio of what was happening in front of them. So they all jumped back into their cars as Brian handed the mike to Jack.**

**“This man saved my life and risked his in the saving” yelled Jack, pointing to Bill. “He is the true hero. I have never told anyone this story because I thought Dr. Bill was dead. I was**

**in the Kunar Valley in 2009. I was badly injured and dying. The Marine Corp field hospital was about to be overrun by Taliban forces and I could not be moved. The CO ordered Bill to leave but he refused. He stayed with me all night, keeping me sedated and alive. I later learned from the pilot that we had barely made it out. But Dr. Bill stayed. He would not leave his other patient.”**

**“Next to me in that same hospital in northwestern Afghanistan was an injured Taliban. Bill speaks Arabic and treated him as a ‘patient’, never ‘the enemy’. This Taliban and I were in the same small recovery room for four days. We had no common language except for our moaning and groaning and the one phrase my companion would speak to me every morning at dawn if he were conscious.**

**“As-salamu alaykum” he would say and I would say back, “As-salamu alaykum, having no idea what it meant.**

**“Well, it means ‘Peace be with you’. And at those moments I would occasionally think, what if my fellow roommate here was the one who shot me, or maybe it was my landmine that brought him down. I think of this man tonight and I think of Dr. Bill as I look out over my community and I see it yelling and screaming at each other. Fighting never brings us peace, only war. I had no plans to speak tonight. But I was born here in this valley and I plan to die here when I am old. So I just needed to say that I love all of you. Happy Thanksgiving.**

### **Back from the Dead**

**There was a celebration dinner planned that night at the Kezar Falls Theater. Masks were worn and social distancing was observed as plates were filled in the lobby and folks made for safe seating in front of the screen. Jack, his wife Cathy and their daughter Jasmine joined the disparate members of what they now called the Carbon Crew. Jack and his family sat in the front row and he seemed somewhat reserved. It seemed to me somewhat appropriate considering what he had just revisited at the school. But when he finally began talking with Bill, everyone else quieted and moved as close as possible.**

**“So I had no idea you were alive,” Jack admitted to no one directly. His eyes moved over to the film screen. ‘You had a Taliban general there that night that was badly injured. You spoke to him in Arabic as if you were old friends. Everyone from the hospital had been**



**evacuated, troops, doctors, nurses, but you refused to leave. I said I would stay, that my leg had stopped bleeding and I would help. But you said “no”.**

**It would be the last chopper of the night, the last helicopter that would fly due to the imminent arrival of enemy troops. I, Lieutenant Sawyer, ordered you to join me on the last two seats but you said “no” and ordered me to leave. And it was my turn to say ‘no’. We both laughed. I then walked over to the General on the operating table, said a prayer for his family in English and as I was leaving he said “Thank you” in English. Then I was gone.**

### **The End of the Beginning**

**Thanksgiving came and went, winter set in and the general sense was that the meeting at the high school was a good ending to the beginning. Jack and his wife now come to as many meetings at the theater as possible and Jasmine became friends with Katya and plan to join the Carbon Club next fall. Covid is still peaking and the drug companies are yet to come up with a fool proof vaccine.**

**Snow depth is the major determinant of how much time we now spend in the woods. I dropped a fairly expensive measuring device on the trail last week and it took me most of the day to find it. It's a challenge to keep the theater heated but someone just made an anonymous donation to cover this issue. And more people are stopping me on the road asking how the project is going.**

**Maybe because the election is over that it seems easier to talk or listen to the other side. Maybe its because Sweetridge Land Trust has reserved a full page in the Shopping every week to keep folks posted and up to date, encouraging them to use our website [Sweetridge LLT.org](http://SweetridgeLLT.org) to ask questions and make suggestions. Maybe it's because we have put four locals, two women and two men, on the land trust board. All are from logging families.**

**On Christmas Eve Marty and I were invited up to Bill, Tatyana and Masha's home. We were asked to bring Weyland who spent most of the time stealing and hiding Titus' toys. After tea and cookies there was a hushed moment when Tatyana left the room. All conversation ceased. Then in came a small milk bottle cradled in her hands, not unlike the cream containers my family had when I was young.**

**["боже мой](#), oh my God," I muttered. "Keffir!"**

**Yes," shouted Tatyana. "You remembered. It took me six months to find a reliable source. Here, you must try it!" And I did.**

**"What do you think? She asked. I told her honestly but for all of you to find out, you will have to come to Porter Maine and try it for yourself.**

**All the best, Peter**

#### **Jacket notes**

**The growing consensus of scientific findings is that to effectively mitigate the worst impacts of climate change, we must not only move beyond fossil fuel consumption but must also**

**substantially increase protection of our native forests so they may absorb more CO2 from the atmosphere and store more carbon in our forests.**

**Current science finds that burning trees for energy produces even more CO2 than burning coal. We need to increase growing forests to more rapidly close the gap between emissions and removal of CO2 by forests while we simultaneously lower emissions from our energy, industrial and agricultural sectors.**

**If there is a tree that lies near you, here is a way you can tell how effective it is as a Guard at the Door. Take a tape measure and wrap it around its trunk about 4 feet above the ground. Measure that circumference. Divide that number by 3.14 and you will then have the diameter of that tree. Then go to your computer and call up**

<https://fsht.files.wordpress.com/2019/04/maine-tree-carbon-estimator.pdf>

**This will give you most of the tree types in your neighborhood and if you scroll down you will get the diameter of most tree types here in the Northeast. When you find your tree and its diameter, view the far right hand column to see how much carbon (CO2) it is safely storing in its trunk, leaves, branches, roots and soils.**

**If this is all too confusing but you are curious and want to learn more, write me at:**

[www.petehagerty.com](http://www.petehagerty.com)

**and see this fun movie at :**

<https://vimeo.com/456781667/9f5b67cad5>

