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>> From WXXI News its 1370 Connection I'm Bob Smith. Asking a question this hour, we got it all wrong. Are we telling our kids to go to college and aspire to be professionals, to be white collared knowledge workers, and maybe that won't get them either a good living or a meaningful life. Well, that's an issue that Matthew Crawford raises in his best selling Shop Class as Soul Craft: An Inquiry into the Value of Work and he's going to raise it this evening when he kicks out the RIT Carolyn Werner Gannett lecture series at 8:00 at the Webb Auditorium on the RIT campus. His topic: A Case for Working with your Hands, our topic this hour as we make that case. Matthew welcome. Glad to have you with us.

>> Matthew Crawford: Yes thanks for having me.

>> Bob Smith: Okay to make a long story short; your PhD--you had a job running a lucrative think tank that would crank out reports I guess telling your funders what they wanted to hear; and you threw it all away, you said forget this, to hell with this, you'd rather run a motorcycle repair shop. To make that long story short, why go from what everybody thinks is the good life to what you're sure is the good life?

>> Matthew Crawford: Well it wasn't, in fact, good. So the job often required--this is the think tank job now--that you kind of make arguments that seem to be coming--had to present themselves as rational and coming from the best scientific evidence; but in fact served somebody's interest whoever was writing the checks. And to make matters worse my--well on that point it often felt like I had to put my own sort of credibility in the service of something that I didn't fully believe in myself. I was making arguments I didn't really buy and that's demoralizing. And I had come--just having finished a PhD program and think tank sounds like it's going to be Academia but in fact it was completely different in that the inquiry was not directed by sort of the questions themselves that you're addressing and in this case policy questions; but by imperatives that were really extraneous to the inquiry.

>> Bob Smith: In other words telling your funders what they wanted to hear.

>> Matthew Crawford: Basically yeah and to make matters worse my boss seemed intent on retraining me according to what you might call a certain cognitive style; and this style demanded that you project an image of rationality but not indulge too much in actual reasoning because it could lead off in sort of the wrong direction. And so we had taken certain positions so there were some facts we were more fond of than other facts. And by contrast in fixing motorcycles either it starts and it runs right or it doesn't; and if it doesn't there's no weaseling your way out of the fact, there's no interpreting your way out of the fact and I kind of like that about it.

>> Bob Smith: It's real. It's real, authentic, no twist, no spin. Sure, but I gather that that job was maybe the last straw. You had a lot of other questions in your mind about the academic life and about the so-called knowledge working business even before that. What caused those questions to start popping up even in your young period?

>> Matthew Crawford: Well let me say I love academic life. The problem is that the kind of jobs you can get with your degrees don't very much resemble to what you actually do in a university. I'll sort of start at the beginning. I got my Bachelor's Degree in Physics and I moved to Los Angeles to look for work in the Aerospace Industry and I sent out dozens of resumes and got essentially zero response--this was in 1989. And after four or five months I was out of money and I found myself going around the parking lot of a home improvement store putting flyers on the windshields of cars to advertise my services as an electrician. This is work that I had done starting as a helper when I was 14 and did it all through the summers. So the flyers said unlicensed but careful and it generated immediate response. There was more demand for my services as an unlicensed electrician than as a credentialed college graduate. So I went into business for myself for a while doing that.

>> Bob Smith: Of course they never told you when you were in graduate school that there were no jobs for anybody with a degree in their field did they? I'm speaking from personal experience on this too. My degree was in American History. There were no tenure track jobs in American History when I got out.

>> Matthew Crawford: Yeah well there's a real glut of PhD's and that's been the case now for decades. So yeah later I got interested in philosophy and I went back and I got a Master's Degree and I thought oh well now I'm ready to sort of join the knowledge economy and wear a tie. So I got a job writing these summaries of articles in academic journals which sounded like it would be a great job; I would learn a lot by sort of surveying all these different disciplines and writing these summaries. The problem was that I had a quota of writing 28 of these per day which if it sounds impossible that's because it is. So I was given these rules for writing them as though one could do this without actually comprehending the material--just crank it out so it was a kind of white collar assembly line. And so the irony is that I got this job which was sort of radically dumped down because I had a Master's Degree; and the further irony is that it paid \$23,000 a year. That's about half what I had been making as an unlicensed electrician. So that was kind of an eye opening.

>> Bob Smith: So did you decide at that point to go for the doctorate?

>> Matthew Crawford: Yeah I learned slowly. I pursued the doctorate I think with my eyes open at that point. I was interested in some ideas I wanted to pursue and wanted the guidance reading some difficult books but I kind of knew that getting a job as a professor is a pretty tough--you've got to get lucky. So I did that degree and I did finally get the think tank job which I already described which was demoralizing for the reasons I gave; and at that point an opportunity came up to rent some warehouse space for very cheap and I'd always kind of wanted to fix motorcycles so I just kind of jumped into it.

>> Bob Smith: So basically I've had enough of this stuff; I'm turning in my necktie and my dress shirt, I'm turning in my credentials, forget about it, I think I'd rather fix Harley's.

>> Matthew Crawford: Anything but Harley's.

>> Bob Smith: Oh anything but Harley's. Why not the Hogs? What's the matter with the Hogs?

>> Matthew Crawford: Well before I said that there's a--the BS quotient is relatively small well that's unless you're dealing with Harley owners and then it can actually be quite high.

>> Bob Smith: Well you'll have--I do know some Harley owners and they seem to be perfectly nice people so what did you encounter about the Harley owners?

>> Matthew Crawford: Well it's just a lot of baggage that seems to come with the whole lifestyle so I tell people I work on motorcycles not lifestyles. I'm just not qualified to help you with your issues.

>> Bob Smith: Okay so forget the Harley B twits here you're doing everything else. You're doing Hondas, BMW's, Triumphs and the whole bit.

>> Matthew Crawford: Yeah.

>> Bob Smith: And what is it that satisfies about making a Honda Goldwyn work?

>> Matthew Crawford: Yeah well first of all I think I do actually a better job of describing the frustrations than the satisfactions. There's a lot of cursing involved when you're trying to get stuff to work. You're dealing with stuff that you can't--because you didn't make it yourself, you didn't design it. You can never completely know it all the way down to the ground the way you can. For example if you're a builder and you build a building, if you build it from the foundation up you know every square inch of it. So as a mechanic you have to be attentive to the signs by which the machine reveals to you what's wrong with it. So there's certain habits of attentiveness that get cultivated in the course of diagnostic mechanical work that I think are pretty significant culturally. I think we often tend to get locked up inside our own heads and the fixing things requires sort of listening and even smelling using kind of all your senses to kind of determine what's wrong with the thing. There's a certain kind of thought process that I think helps you cultivate certain kinds of really ethical virtues, I'll say.

>> Bob Smith: And it took basically rolling up your sleeves, getting your hands greasy, tearing apart and putting it back together and making work a machine to really get that satisfaction.

>> Matthew Crawford: Yeah I mean when something you've been beating your head against for hours finally does come to life, you sometimes feel like you've grown three inches. It's a feeling of elation and I don't want to sort of oversell the satisfactions of this kind of work. I think there are motions of elation like that and they take place against a darker backdrop which is a keen awareness of catastrophe as this possibility that is always there. In other words you can hurt yourself; someone else can get hurt. One time my shop mate forgot to tighten the nuts holding the axle on the front wheel of a bike and the guy got a few blocks away and came back complaining of it shaking in the front end. No one got hurt but that kind of episode really impresses itself on your mind.

>> Bob Smith: So if he'd gone much further...

>> Matthew Crawford: Yeah, who knows? So it's--I think that the trades in general they tend to develop a keen kind of sense of individual responsibility.

It's you--it's all on you. There's no committee. So in that sense I think it helps to support a certain kind of moral development.

>> Bob Smith: Not to mention the satisfaction in just rebuilding something and making it run smoothly.

>> Matthew Crawford: Yeah and literally seeing it out there in the world running as it should. It's like it's kind of a--well your own competent is made manifest in the world for everyone to see so there's a kind of social element to it. You're competence isn't just something you're imaging in your head that's--you can simply point there it is in the world and everyone...

>> Bob Smith: You say hey guess what it works. I did that. Everything's as it should be. Well if only we could make everything the way it should be just by rolling up our sleeves and getting into it. Well maybe we can; I don't know. But I guess you get a chance to do it day by day. I get the satisfaction of that. I understand that. And I also get that maybe a lot of people won't find that in their jobs.

>> Matthew Crawford: Yeah I think kind of one of the real problems with a lot of jobs is that they get dumped down. Like for example that job I had writing those summaries, and in fact that seems to be a central kind of tendency of the modern economy is to deliberately remove the mental challenges from a job as much as possible; so that you can replace skilled workers with unskilled workers and pay them less.

>> Bob Smith: Now that's not to disintegrate [assumed spelling] the skill of the person who wrote the article in the first place, and admittedly pitched it to an audience of technically savvy people who could grasp and use the information that that person had. That person did have value in what he did. In a way were they asking you to dilute that value?

>> Matthew Crawford: They were asking me to do it at such a pace that it was impossible to do justice to the article I was reading. So I imagine--so the result that what we wrote was crap. Now I imagine that if all you're concerned about is short-term profit, say of a share price, well maybe it takes three or four years before the users of this database that I was contributing to realize that it's crap; so there does seem to be a problem in the corporate economy. When the goal is short-term profits you can very easily arrange the work in a way that's perverse the way this job was perverse, and the managers who make those kinds of decisions may not themselves pay the price for that because they'll have moved on to the next company within a few years.

>> Bob Smith: 263-WXXI by the way is our number 1370 Connect to the broadcast at WXXI. I'm Bob Smith and we are talking with Matthew Crawford, the author of Shop Class as Soul Craft: An Inquiry into the Value of Work. He's talking to an audience at RIT this evening at 8 at the Webb Auditorium, the kickoff for the Carolyn Warner Gannett lecture series for this year--Visionaries in Motion. He's sharing with us his discovery that the world of the white collar intellectual is not what it's cracked up to be and not for everybody. And maybe you ought to think twice before you brace that dream. 263-WXXI, 263-9994, or drop in or our in-studio e-mail address is asktotalk@wxxi.org and it's available to you all during the program. One thing that I do want to try to understand about the academic life itself--you had a little bit of a taste of it even before you took that think tank you were in a post doc Fellowship for a while that looked like--

it's hard to describe, it seems so ill-defined. There you were sitting at an office right between some academic superstars, and I get the feeling that the people who collected all these folks together had no idea what they expected to happen from it.

>> Matthew Crawford: Well yeah that was actually what was so wonderful about that kind of opportunity was that it was unstructured and complete freedom to do whatever I wanted and that's a rare kind of leisure to have that. As it happened I was kind of--I was sort of burned out on my academic work and retreated to a workshop I set up in this basement and spent the time rebuilding this motorcycle. But again I want to be real clear that the argument I'm making here is not an anti-intellectual argument and it's not even anti-academic. In fact, it's an attempt to defend the life of the mind by pointing out that it can be connected to real things. And in fact I think we impoverish ourselves intellectually when we devalue manual competence--the ability to make things and fix things.

>> Bob Smith: We're going over into Henry David Thoreau territory here now, we really are. Let's face it--he's talking about something similar--getting in touch with yourself, getting in touch with the world around you and forgetting about the veneer of "civilized life". It seems to me that you're getting rid of a few veneers of your own here. And talking about doing something real and something tangible.

>> Matthew Crawford: Yeah and I think what kind of drove me to the train of insights that I develop in the book is it was an attempt to make sense of my own work history; and the fact that academic credentials don't necessarily lead to work that is intellectually challenging. They serve as a kind of gate keeping mechanism for employers, but what you actually do you may find yourself not using your mind much. And by contrast what a plumber does, an electrician, an auto mechanic. That work can never be reduced to simply following a set of procedures. The physical circumstances in which you do those jobs varies too much for it to get routinized [assumed spelling] in that way. It always requires improvisation and adaptability. And the result is that you feel like a human being rather than a cog in a machine.

>> Bob Smith: If you've got an analytical mind it's just for you.

>> Matthew Crawford: I think that there are a lot of people who are plenty smart but who are left cold by studying for standardized tests in school. So it's a question of what's going to spark that love of learning; and for some people it's tinkering, taking things apart, figuring out how they work and I think we need to honor that. We don't do a good job of accommodating that kind of disposition in schools. Shop Class was widely dismantled in the 1990's in this country to make room for computer classes. We had this idea that somehow we're all going to be gliding around in a pure information economy; but again I think some people who are plenty smart would rather be learning to build things or to fix things.

>> Bob Smith: And the people who are making money even in that business or the folks who are taking computers apart, replacing blown chips, purging machines of viruses, doing the kinds of things for computers that people who do repair rebuilding do for motorcycles or cars.

>> Matthew Crawford: There's a powerful economic argument here too; I'm not an economist but various economists have pointed out that any kind of work that can be delivered electronically, in other words, the product can be delivered electronically over a wire is vulnerable to getting outsourced. And by contrast, you can't fix a leaking toilet over the Internet and therefore there is a certain job security that the plumber has.

>> Bob Smith: We'll talk more about that in just a second. We must take a short pause. We're back with more of 1370 Connection, more of our conversation with Matthew Crawford, the author of Shop Class and Soul Craft. We'll get to your calls too. I'm Bob Smith back in a minute on WXXI and 1370.

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>> Bob Smith: 1370 Connection continuing at WXXI and 1370 AM at FM HD2; I'm Bob Smith, we have with us across the table Matthew Crawford, the author of Shop Class and Soul Craft. He's the kickoff speaker of this year's Carolyn Werner Gannett lecture series at RIT. He'll be speaking this evening at RIT's Webb Auditorium. Right now he's speaking with us. Let's go to the phones right now at 263-WXXI we've got Katherine on the line in Rochester. Hi Katherine you're on the air with us. Welcome.

>> Katherine: Hi Bob, hi Mr. Crawford; thank you for taking my call. This is a topic that's near and dear to my heart and I thank you so much for being on the show today. I have mostly a comment but also a question. I feel like I was presented with the script as a child that I needed to have a professional career. My father was a professor at a university and my mom was an attorney. Those were the expectations in my household; well I followed that path sort of. I had different corporate careers and found myself miserable to the point where I finally ditched it all and became certified as a personal trainer which I do now still and absolutely adore. So that's my comment and I think there's a lot of people out there like yourself and like me that have found that the script that we were given is not necessarily the script that we should be following. But that leads me to my question and how is it that we can utilize the education system to get kids to really kind of open their eyes to all of the different possibilities that are out there; yet without totally pigeonholing them to one particular trade or craft where it's not as easy to jump ship as it may have been per se you or myself. Does that make sense?

>> Matthew Crawford: Yeah and I think that's an important point. In other words if we were to track people from an early age into different pursuits, that can be really damaging especially if that tracking is based on not so much the kind of inner need of the kids or interest, but on to the proxy variables like what their economic status is or their race or something like that. So I think it does have to be responsive to the interest of the kid and so that I think is an argument for just making sure kids get exposed to different possibilities and present it with a fuller range of images of what work might consist of for them. And I've actually just this morning been over at RIT in their College of Applied Science and Technology and it's an exciting thing going over there. You've got these engineering students who are--now this is obviously at a higher level of education; we're not talking about grade school or high school here but college. But rather than just learning engineering as an academic discipline they're for example, building these race cars where it's this iterated process of designing it, making it--they make literally every part of the car and they go out and race them and of course things break. And they learn a lot from doing that and

so it's back to the drawing board situation at that point. The reason I bring this up is that the students who are doing this so clearly love what they're doing. You get the feeling that they have to be chased out of this machine shop at the end of the day, and it seems to me that something like that could be incorporated into high schools. If you had--for example if you're building a tube frame chassis for a race car, well suddenly trigonometry becomes very interesting for a kid who might previously have not been the least bit interested. I think I'm getting away from your question I'm sorry. But...

>> Katherine: No, no, no that answers it. Are you seeing a trend more towards that in some of the schools that are more like RIT sort of the liberal arts traditional schools?

>> Matthew Crawford: I don't know and I think I get a very selective sample because programs like this tend to be brought to my attention because of the book I wrote but it does seem like there's a kind of, a bit of waking up that's going on to the fact that thinking and doing are inherently tied together, and the kind of education that does justice to that I think is less likely to live--to leave vast swaths of student body sitting there feeling like their education is unworthy of their full attention and engagement; and I think that's what we have currently. I think a lot of kids check out or maybe get wrapped up in a virtual world that's a kind of consolation prize. So...

>> Bob Smith: Okay thanks for checking in at 263WXXI, 263-9994 where next we're going to hear from Jane. Hi Jane welcome you're on the air.

>> Jane: Thank you. I love this subject. All my life I heard things like well she's going to be somebody someday i.e. you're not or have something some day. And I always rebelled against that because I thought I am somebody. I don't need to prove that I am somebody and that really frees you up. It can make you a black sheep in the family though if you should go against the values there. But we did have a very, very narrow definition of success. It's very demeaning, it's got little sometimes to do with intrinsic enjoyment and values as [inaudible] and you've got to conform. And what you were doing Mr. Crawford it reminded me immediately of 1994 where Winston had--his job was to basically make two plus two equal five. Yeah so and I want to make a complaint here and I'll give you an example of how far people will go to fit in. Last night or maybe the night before I was watching Chris Matthews; I can't stand him more than five or ten minutes at a time but he made the statement and my head just came up like what did he say. And he said, "Really the problem basically with Obama is he needed to get an economic advisor, get James Baker as an economic advisor." And you people may disagree with me but I thought my God is he sincere? Is he really sincere? And I thought about your two plus two equals five and I think people do especially these pundits that we have. They'll just--they're [inaudible], they'll say anything and they think to insulate themselves from any responsibility or ownership of any consequences of their work. Anyway I very much admire you and the way you think and thank you so much.

>> Matthew Crawford: Thanks for calling and I'm scratching my head why Chris Matthews came up with the name of James Baker as an economic advisor. The guy was an international deal maker, he fitted state, I remember attending a press conference he gave in Moscow in 1989 when I was sent there to do a series of programs instead of back here. But economic advisor would be the last thing I'd be thinking about but that had me kind of stung for a second, but maybe we can actually pick up on the connection between economics and international stuff

because it gets to a point I was making earlier. So thirty years ago we learned that anything that can be put in a box and then on a container ship is going to be made wherever labor is cheapest which turns out to not be here--it's China. And of course manufacturing has been really badly hurt as a result. Well in the last 15 years we've learned that a similar logic applies to the products of intellectual labor that can be delivered over a wire. So for example radiologists who examine images now find themselves competing with radiologists in India because the image can be transmitted electronically and so can your analysis of it. Accountants, programmers face this same problem of outsourcing. So the insight here is that any kind of work that has to be done onsite or in person is relatively secure against that kind of outsourcing. That's something that needs to be taken in account when we're giving young people career advice. If you can find the kind of livelihood that resists that logic of outsourcing that's a plus.

>> Bob Smith: 263-WXXI we've got Elaine on the line. Hi Elaine you're on the air.

>> Elaine: Hi there. Three things--I'll try to be quick is that I sew and that's a dying art but it gives me more satisfaction to successfully make a complicated suit than it does most anything I can think of with a computer. And so there is a great deal to be said for work with the hands whether you can do it professionally or as an avocation. America has a great history of [inaudible] farmers and people who work for their hands for a living but still use their brain. Now on the other end of the stick my daughter just started her freshman year of college, is an acting student and I joke to everyone that I'm more than a little serious I'd like her to minor in employment. Because they [inaudible] and you can pay your rent. And the third point is that...

>> Matthew Crawford: They can't develop holograms that will deliver a performance yet.

>> Elaine: Not yet. We'll cross our fingers.

>> Matthew Crawford: I don't think we're going to accept them.

>> Elaine: No and the third point is that that college diploma still in many ways is the ticket and so many people are not doing whatever their degree is in which I think you mentioned; but in so many places it's a pass and a way to get in. And I think that we are doing our students today in high school a service, the trades are still looked down upon in many ways. So I'm hoping that your time at RIT will make that less so as to put it into the heads of symmetric leaders as well. And I'll say your comments at any point will be appreciated.

>> Matthew Crawford: Okay thanks a lot. Yeah your last point I think is right that the trades have kind of a prestige problem. It's very easy to assume that if the work is dirty it must be stupid. And I'm trying to kind of point out that just how much thinking goes on in the trades and it's the kind of thinking that can be genuinely impressive but only if we stop to notice it. I want to get to your first point which is about--you mentioned sewing suits and sort of working with your hands not as a livelihood but as a kind of avocation. I think that's important. Especially in light of the fact that there have been a lot of changes in technology and material culture you might call it, that it made it harder to get a handle on your own stuff and be self-reliant. There's a design philosophy that's emerged where the point seems to be to hide the works. So for example if

you lift the hood on some cars now, essentially there's another hood under the hood as though the site of an alternator would offend us somehow.

>> Bob Smith: Nobody wants to see the sparkplug wires.

>> Matthew Crawford: Yeah and some high-end cars now don't even have a dipstick so you could check your own oil level if you wanted to. Instead you're sent an e-mail when your oil level gets low. And I can't be the only person who's a little freaked out by this.

>> Bob Smith: Huh? Why can't they put a gauge on the dashboard to tell you that stuff?

>> Matthew Crawford: Well it used to be that in addition to a dipstick you had something called an idiot light; and it was called an idiot light for a reason. We had a harsh judgment of anyone who was so uninvolved with their own car that they let it get to the point that the light is coming on; but there's some weird cultural logic whereby idiocy, that is a lack of involvement, gets recast as something desirable sort of a sign of technological progress.

>> Bob Smith: That's something I've got to admit I don't get. You feel that you're totally uninformed if you don't have a dashboard that has gauges that tell you what your water level is, what the temperature is, what your oil pressure is, how fast you're spinning the engine so you don't over rev it. You want to know these things don't you?

>> Matthew Crawford: Well I think there's some appeal to beings or disburdened of all this; to be kind of floating around completely unconcerned with these things obviously that has some kind of appeal and to not have to mess around with dipsticks and dirty rags is a kind of progress. But I also want to just notice that there is a kind of moral education that is tasked at immaterial culture and it can go in various directions. The way things are going currently, it often feels like the modern personality is being reformed in the direction of passivity and dependence. There are fewer occasions to be directly responsible for your own physical environment.

>> Bob Smith: 263-WXXI we've got here with us in the studio, Matthew Crawford, the author of Shop Class and Soul Craft, and we have Jim on the line from Canisius, New York. Hi Jim you're on the air. Hello Jim where are you? Are you there? Well we'll put Jim on hold perhaps and we will move along at 263-WXXI, 263-9994 and hear from other callers. Incidentally if you would like to take part in the program, we'd love to have you on the line. Dial 263-WXXI, 263-9994 and we'll be listening to what you have to say as we continue our conversation with Matthew Crawford. I'm Bob Smith with you on WXXI AM 1370 at FM HD2. Doug in Fairport checking in right now. Hi Doug you're on the air.

>> Doug: Hey great show guys and Matt or Matthew whatever you prefer to be called, I love what you're saying. I personally would have gone in a different direction had I been strong enough to resist a very dominant father. But he would not allow any of his sibs to pursue blue college. I wanted to be a landscape architect and do what I was very good at which was creating and designing and building landscapes and I didn't; and I went the corporate route and although I had many great experiences and traveled the world and learned a lot and met new people. I was never really fulfilled and so what I've done is start my [inaudible] very early age and make and for their avocation which is

what you'd love to do and are good at and really enjoy, and to their vocation is what you need to do in order to learn a living and support yourself for a family; that they will have a much, much greater chance of being not only successful but [inaudible] in what they do to start their life. I love what you're saying because I'm hearing you say that.

>> Matthew Crawford: Yeah thanks Doug and I think it is good to encourage ones children in that way sort of to raise their expectations a little bit as to what's possible. I guess I also want to sound a cautionary note here too because I think the book I've written can be taken as a kind of idealistic thing; and I think there is a risk of attaching too much significance to work and of attaching inflated hopes for fulfillment to work. And that can lead people into misery when those hopes are inevitably disappointed.

>> Doug: Absolutely.

>> Matthew Crawford: I guess I want to try to make a case for some fairly low to the ground sort of satisfactions that are possible, and prepare the way for that argument by precisely clearing away some of the false hopes we attach to work to begin with; and suggesting that the kind of satisfactions that are available are fairly modest but solid. If you can find that you're doing good.

>> Doug: I agree. Thank you for your comments and I'll listen up a year for now.

>> Bob Smith: Thanks very much for checking in at 263-WXXI we've got Mark in Rochester next and Mark you're on the air.

>> Mark: Thanks. I have a number of disparate comments and I'll make them and hopefully you can tie them together. One is that my going through school I really was fighting the educational system most of my life because I am really a hands-on type learner. I really need examples and as I've become an adult I have really tried to find and tried to continue to educate myself and have found a lot of fulfillment in that. The next comment I wanted to make is that I really think that kids need to get a full science education and a full math education because the world around us is increasingly complex, and understanding the world around us and being able to make decisions good for us as a society is important. Being able to understand that 97% of scientists agree that we're putting greenhouse gas into the environment and understand how to understand the science, and how to understand the math and how to understand all of that is just part of being a citizen. So I'm sure that you're not saying let's just teach people how to be an electrician and call it a day, but that could be a interpretation and I'm more or less saying that kids today really need to have the science and math.

>> Matthew Crawford: Yeah I agree and so then part of the problem is how do you get them interested in science and math? And I think one way that you can do that is by exploiting the facts that I think were by nature tool users and if you can connect sort of thinking and doing in a practical way for students I think--well I've seen it happen that they may come alive students who otherwise might have been quite disengaged. So I do think that there is a kind of harmony here between acquiring practical skills and competence on the one hand and on the other hand learning principles of science. And of course if you need math in the course of doing either one...

>> Mark: And that really actually does tie together with my initial comments of my--that I found myself to be an experiential learning as opposed to a--somebody that just could surely follow along a complex math, differential equations or something like that. I really needed to understand why would somebody want to solve a differential equation. What's at the end of that?

>> Matthew Crawford: Yeah, right, what's at stake? Yeah and then also one of the words used by--earlier today at this College of Applied Science and Technology a guy named Carl Lundgren there who mentioned that the students there they see fruition to their studies. There's something literally sitting there in the world that they can kind of point to and be proud of and I think that too motivates the theoretical study. There's a kind of payoff.

>> Mark: Sure. Well thanks very much.

>> Bob Smith: Yeah, yeah dude thank you very much for calling in. We are talking with Matthew Crawford, the author of Shop Class Soul Craft: An Inquiry into the Value of Work. He's speaking tonight at RIT Webb Auditorium at 8:00 at the kickoff of this year's Carolyn Werner Gannett lecture series. Talking with us this hour 1370 Connection about work, what it really is and whether or not we've been chasing a dream that we really don't want to fulfill many cases; because we're being programmed and educated just to follow the white collar dream of sitting behind a desk and doing things that don't get your hands dirty. But then the question is do they make you feel you've done anything when the day is done. And I guess that's the question really that you're asking. There are a lot of people who have white collar jobs who feel perfectly satisfied and accomplished because they have a feeling that they got something done at the end of the day. They either wrote something or they settled a legal case satisfactorily or they created or designed a product or did something that they felt was worthwhile, but that's not the only place that you're going to find real value or satisfaction.

>> Matthew Crawford: I think that's right and so the more important and interesting question is not whether you work with your hands or work in an office; the question is whether the job involves using your own judgment or not. But it's imprecisely those grounds that I think the trades are worth taking a fresh look at. They're not for everybody and some white collar work is much, much better than others. Working in an office, you just mentioned Bob that sometimes it's hard to see at the end of the day exactly what you've accomplished; and when that's the case we're the sort of train of cause and effect that maybe gets a little confusing and opaque and responsibility tends to get spread around with all the sort of committees and teamwork and all that. That feeling of individual agency can be illusive; I mean that feeling of seeing a direct effect of your actions in the world. And also when the--say you're a carpenter and you had a problem with your boss. You can say to him it's plum, it's level and it's square. Go check it yourself. But if you don't have appeal to concrete standards of that sort, you're never quite sure where you stand so you have to spend a lot of time sort of managing what others think of you, and I think the result is that the office can often be a kind of paranoid place. In fact that TV show The Office does a good job of capturing that which is why it's so funny.

>> Bob Smith: And of course I'm sure the set of The Office isn't anything like that in it's feeling because hey they know they did a funny television show and

millions of people watched it on Thursday night. They have a sense of accomplishment but the people they're playing don't.

>> Matthew Crawford: Right, I imagine so.

>> Bob Smith: Steve Carrel thinks about that every time he looks at the Emmy on his shelf. But that's it; there are certain people whose job inherently gives some kind of a return; and there are some folks who do have to stretch their hand and wonder gee what did I get done today? That's got to be rough if you have to ask yourself that question isn't it?

>> Matthew Crawford: Yeah and I think also another problem is it's in so many work environments. It's hard to actually concentrate and focus on something in a sustained way. That it's the e-mails and everything else that making these little claims on your attention, I think that that feeling of being completely engaged and focused on something is an important element of being satisfied in work. The feeling of your power is increasing because you're working in that sustained way. That has become very illusive.

>> Bob Smith: But that's a pretty good thumbnail description of what everybody ought to be looking for right?

>> Matthew Crawford: I think that's an important element of it--yeah.

>> Bob Smith: Is it something that may be beyond some people's ability to get simply because we're living in a world where the opportunities aren't as limitless as we thought they were going to be when we were growing up?

>> Matthew Crawford: Yeah well we're living through interesting times and...

>> Bob Smith: Yeah that's a Chinese curse.

>> Matthew Crawford: That's right with the economic crisis and everything. If there's any kind of silver lining at all to the horrible job situation, one might be that--the question of what a good job can consist of is maybe a little bit more open now than it has been. Our peripheral vision is maybe recovering or it's been on a kind of one track.

>> Bob Smith: Thanks for helping us focus. My thanks to Matthew Crawford, the author of Shop Class and Soul Craft: An Inquiry into the Value of Work. He'll be speaking at RIT at 8:00 this evening at Webb Auditorium as part of the Carolyn Werner Gannett lecture series. Our thanks to him for speaking with us and with you on this hour of 1370 Connection, WXXI Rochester. I'm Bob Smith; stay with us there's more to come after the news and we'll see you then.

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