

Enjoy Your Slushy

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It is a hot summer day. You have been very active, and now you are hot and thirsty. And so you stop at the local ice cream parlor, thinking to sate your thirst and cool off at the same time. The attendant brings your order: a large slushy. The sight of the shaved ice drowning in sweet, fruity syrup only serves to increase your thirst. Without any regard for the mind-numbing headache caused by the intensely cold drink, you begin to suck it down.

At first, the fluid flows freely through the straw, temporarily assuaging your thirst and fighting off the oppressive heat from outside. But at some point, long before quenching your thirst, it becomes more difficult to suck the fluid out of the ice. You have reached the halfway point, where you have consumed half of the fluid from the container. Now, what is left in the cup has to be drawn through the ice before it will reach the straw. You begin sucking harder, but that is not enough. You have to stop drinking in order to stir up the slushy, freeing fluid and melting more of the ice so that you can drink it. And the fluid which you can extract is losing its flavor; there is less syrup in the container and more water. The effort of stirring the slushy and sucking forcefully on the straw has heated you up again. Your thirst has returned with full force. Eventually, you reach a point where it is no longer worth it to you to drink the remaining slush. You throw it in a trash receptacle. There is still some ice and syrup in the bottom of the container, and you could have simply waited for it to melt and then drank the rest of it. But it is no longer worth it to make that effort. And you are still very thirsty and very hot, perhaps even more so than when you purchased the slushy.

Humanity finds itself in a similar situation today with regard to global oil production. Oil is not found in vast underground caverns, waiting to be drained out. Oil is like the syrup in the slushy, only the medium in which oil exists is even more resistant to flow than ice crystals. Oil is found trapped below impermeable caps in bodies of sand or sandstone, or sometimes in layers of fractured rock. There it is usually held under some pressure, so that when we manage to penetrate the field with our straw the first bit of oil may come gushing out, until the pressure has been equalized. Once the oil has ceased flowing of its own accord, we must start sucking it through the straw, using more and more energy all the time to do so.

Eventually, we reach a point—usually when about half the oil has been extracted—when it becomes more and more difficult to draw oil through our straw. Sucking on the straw is no longer sufficient. We must resort to other techniques to push the oil to the straw. The most common practice is to sink other wells on the edge of the field and use them to pump gas and water into the field. This leads to what is known as water cut, where a growing proportion of what we pump out of the field consists of waste water. The quality of the oil, itself, declines as we continue to pump the field. We are no longer pumping sweet crude, but instead producing oil diluted with water cut; or, worse yet, sour crude tainted with sulfur and heavy metals which corrode the machinery and which must be extracted from the oil before it can be used.

Finally, at some point after the halfway mark but before the field is completely depleted, we arrive at a situation where it is costing us as much energy to pump the oil as we can get out of the oil. At that point, the well is capped; we stop stirring the slushy and throw it in the nearest trash receptacle.

Currently, we are reaching the halfway point in our global slushy. Soon it will take more and more effort to drink, and we will draw out less fluid per sip. If our energy needs do not also decline, then we will be left with an unquenched thirst. Unfortunately for us, we live in a world where continued prosperity requires constant growth, and constant growth requires ever increasing energy production. Never mind energy depletion, if we manage to keep our energy production at a constant rate, then we can no longer grow. And the moment we stop growing, our economy will begin to tank.

The coming decline in oil production is of critical importance, far beyond the price we pay at the gasoline pump. We will look at exactly how important petroleum is to us in a future column. For now, let us just say that

as oil production declines, so will our civilization.

The important thing is that this decline will begin soon, perhaps as soon as next year, at most within the decade. And as of right now, we are totally unprepared for this; most of us are still unaware of it or are in denial about it. If we go into this decline without being prepared, then we will see economic collapse, social unrest, increased fighting over resources, and personal deprivation and suffering on a global scale.

A slushy is, after all, a minor thing. If there is something wrong with it, you can throw it away and forget about it. This is not a slushy.