The Moral Molecule and International Relations

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On August 30, 2009, former Israeli Prime Minister Ehud Olmert was indicted on charges of fraud, evading taxes, and breach of trust. These allegations were so egregious that Olmert had been forced to resign his position a year earlier. The last charge is slightly jarring. Whose trust was Olmert alleged to have breached? The Israeli Knesset? The Israeli people? The international community?

Every representative political system depends on trust. The same is true for relations between polities, yet the research done to date by political scientists, and other scientists for that matter, has only begun to identify why we trust others.

There is, indeed, an even deeper issue lurking below why we trust others: are people (including people running countries) fundamentally good or evil? Much of the research and most of the models of international relations are based on the assumption that we should never trust the other side; given a chance, defection or violence are likely outcomes. Yet, for most of us living in democracies and many living in non-democracies, cooperation is the norm in most aspects of our daily lives. Why is there a disconnect between our daily lives and how we understand the relations between nations?

My recent book, *The Moral Molecule: The Source of Love and Prosperity,* describes the ten years I spent running laboratory and field experiments looking for a brain chemical that would explain why people are ever good. The benefits of being bad are manifold and the brain mechanisms producing aggression and fear are well-understood. But, the other side of the equation, why people are trustworthy, honest and generous, was largely ignored by scientists. My book not only presents the unlikely scientific detective story of my discovery of this molecule, it explains how to use it to understand and improve personal, professional, and national relationships.

Trained as both an economist and a neuroscientist, I am a skeptic when it comes to people's recollections and their descriptions of hypothetical behaviors. So, many of my experiments tempt people with virtue and vice by using money. This is a field now called neuroeconomics. But, back in 2001, I was simply trying to figure out why people would be trustworthy when no one was watching. So, I married experimental economics with "vampire economics" by taking blood before and after people made decisions. My target was a then little-studied peptide that the human brain produced when women gave birth and breastfed, oxytocin. By the 1990s, though, animal studies of oxytocin had shown that it motivated females to care for offspring and in some group-living animals facilitated toleration of burrow-mates. I thought that toleration and trustworthiness might run on a continuum. As it turns out, under stress oxytocin was simultaneously released in brain and blood so I could measure it without doing neurosurgery.

An innovative idea perhaps, but the execution was difficult. Oxytocin is a shy molecule. It must be coaxed out of the brain and then captured rapidly and carefully before its faint trace disappears. Once my collaborators and I had designed a protocol to capture oxytocin fast and keep it from degrading, we ran our "vampire" trust experiment. We found that the more money someone received, denoting trust, the more the brain produced oxytocin. Further, the amount of oxytocin in circulation predicted how much money one would reciprocate to the person who had initiated trust.

Just absorb that for a minute: oxytocin motivates reciprocation of like with like. That's the Golden Rule, a maxim that

exists in every culture on the planet. You play nice, I'll play nice. Oxytocin release occurs in 95% of the thousands of people I've taken blood from in a decade's worth of experiments. I've also done experiments using synthetic oxytocin that we safely infuse into human brains through the nose. These experiments reveal that oxytocin turns on a variety of virtuous behaviors like trust, generosity and charity, just like turning on the spigot of a garden hose.

The experiments my colleagues and I have run demonstrate the broad and blunt effect of oxytocin in stimulating moral behaviors toward strangers. Once the brain releases oxytocin, for the next 20 to 30 minutes people are more compassionate toward others they encounter, not just the person who initially provoked their brains to release oxytocin. Oxytocin-driven morality occurs not only in laboratory experiments, but also in real-world social activities where I've taken blood. These range from a wedding, to church services, to soldiers marching, to rugby players warming up for a match, to indigenous people in Papua New Guinea performing an ancient tribal dance. In all these cases, a majority of participants' brains released oxytocin and in these individuals there was a greater feeling of closeness to their communities.

Oxytocin is one of a set of neurochemicals in the brain that make it feel good to do good. This is what it means to be a social creature: we engage in behaviors that sustain us in the social group. We generally call these behaviors "moral." The lowercase "m" is important, there is no philosophical or theological implication of this word, it simply means the appropriate social behavior people are expected to exhibit in most circumstances.

My neuroscience findings are actionable. The brain circuit that oxytocin release puts into action can be used to predict the factors that promote or stall moral behaviors. For example, high stress inhibits the action of oxytocin. Imagine a NATO partner with a close election coming up in which the prime minister disallows the US to fly military jets over its airspace. Instead of seeing this country as "hostile to US interests", my oxytocin research suggests this "acting out" is a short-term survival strategy that will likely abate after the stress of the election disappears.

Another potent oxytocin inhibitor is testosterone. In experiments where I've administered testosterone to men and compared their behavior to the same men given a placebo, the pharmacologically created alpha males are more selfish toward others and more demanding of them. Testosterone also promotes aggression and risk-taking. This suggests that having more women in positions of authority, or men whose testosterone has fallen because they are married or older may reduce international conflicts.

But then there are the five percent I've found who do not respond to positive social stimuli by releasing oxytocin. They have what I call Oxytocin Deficit Disorder (ODD). They are indeed odd in that they have many of the traits of psychopaths. These individuals can be quite dangerous and must be isolated from others; neither punishment nor reward affects their behaviors. In fact, the subjective experience of your brain releasing oxytocin is a feeling of empathy. A complete lack of empathy is a hallmark of psychopathy.

So what does all this mean for international relations? During international negotiations, one can start the virtuous cycle of self-reinforcing morality by showing trust. In many circumstances, trust will produce oxytocin release and lead to reciprocation. Yet, as the Russian proverb says, one must always "trust but verify." The assumption that human beings will cheat and aggress whenever possible is counter to our social nature and to the existence of a tiny molecule that makes us moral. More accurately, it makes us moral most of the time.

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