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"Membership in a clandestine terrorist cell; online linkages with glamorous, dangerous individuals; the opportunity to belong to a feared and seemingly heroic movement complete with martyrs—all of this is inherently appealing to young people."

Toy Soldiers: The Youth Factor in the War on Terror

CHERYL BENARD

"About the time of Easter . . ., many thousands of boys, ranging in age from six years to full maturity, left the plows or carts which they were driving, the flocks which they were pasturing, and anything else which they were doing . . . [and] put up banners and began to journey to Jerusalem . . . They [said] that they were equal to the Divine will in this matter and that, whatever God might wish to do with them, they would accept it willingly and with humble spirit. Some were turned back at Metz, others at Piacenza, and others even at Rome. Still others got to Marseilles, but whether they crossed to the Holy Land or what their end was is uncertain. One thing is sure: that of the many thousands who rose up, only very few returned."

—from a description of the so-called Children’s Crusade in Chronica Regni Colonensiis Continuatio prima, translated by James Brundage

Much has been made of an ominous demographic reality prevalent in the Middle East. Although the exact number varies from country to country, any speaker who mentions the proportion of the population below age 20, or below age 16, can count on receiving gasps of surprise from Western audiences. Fifty percent of the population below age 19! Sixty-five percent below age 25! And no functioning economy to absorb them. It is clear even to a layperson that this spells trouble.

Experts will point out that it could also spell prosperity—in theory. In theory, a young population has the potential to be productive and to bless its society with a low dependency ratio: that is, with a larger segment of productive workers supporting a smaller segment of the elderly, the very young, the incapacitated, and otherwise nonproductive individuals who must count on tapping into the income of others. In reality, though, cultural, political, and economic factors can—and throughout much of the Islamic world do—stand in the way of productivity and prosperity. The youth overhang, instead of constituting a motor for growth, becomes what Isobel Coleman of the Council on Foreign Relations has called a potential "youthquake" and a "massive demographic tsunami."

Many young people in the Middle East, especially the famously more volatile young males, are deprived of sensible activities, bereft of real hope for a happy and independent future, unschooled in practical modes of thinking, and sexually frustrated in their strict and puritanical societies. Many are hammered with the rousing appeals of radical preachers and ideologues. Others are simply bored and purposeless. Clearly this is not a promising recipe for stable social advancement.

All of these social conditions and their implications in the region are being discussed and fretted over, and with good cause. But another variable in the situation has received less attention: the underlying mindset and mental development of young adults generally. I would argue that, beneath many of the conflicts tearing at the Middle East today, including the "war on terror," the Palestinian intifada against Israel, and the insurgency in Iraq—as indeed underneath probably most instances of major violence throughout history—there lies an unspoken, disturbing social contract in which older people pursue agendas by deploying the volatile weapon of mentally not-yet-mature younger men.
THE IMMATURE BRAIN

While this issue has important ethical dimensions, the question is raised more neutrally by recent neurological and developmental findings that in turn are the product of improved medical technology. Increasingly sophisticated Magnetic Resonance Imaging (MRI) of brains, in combination with research in experimental psychology, indicates that maturation may take place more gradually and conclude later than formerly presumed. A number of studies suggest that mental and behavioral development continues to be in considerable flux until somewhere between the ages of 22 and 24; that before this time, young people and particularly young men are inclined to show particular responses, behaviors, and mindsets; and that these are of high relevance to their own personal safety and well-being and to those of others around them.

The findings can be summed up as follows: young men are strongly inclined to seek out situations of risk, excitement, and danger; and they also are likely to make fallacious judgments about their own abilities, overestimating their capacities and underestimating objective obstacles and dangers. In a variety of important interactive contexts, as a result, their reactions predictably veer toward the impulsive taking of unwise risks. All of this affects their ability not so much to understand, but to process and "believe in" the potential for negative outcomes and even catastrophic consequences of their decisions.

Not much of this, of course, really comes as a surprise. That young people are impulsive and that young men like to test themselves in situations of high risk is well known. Recent research, however, provides a much more specific window into the mechanics of youthful responses and decisions, as well as the situations that represent a particular risk for reactions that can be harmful to the individual or to others. It also reveals the inheritance of some of these behaviors, which are not individual failings or errors but flow from a natural developmental process to which all individuals are subject—and which others might exploit.

The first conclusion that suggests itself from current research in neurological development is that adolescence and young adulthood conclude later than formerly assumed. Brain development is of course an ongoing process. Adolescence, however, is a time of particularly high change. Longitudinal studies following changes in the prefrontal cortex indicate that the changes do not wind down until age 22 or even later. The prefrontal cortex is jovially referred to by experts in this field as the "area of sober second thought." This is the part of the mind that carefully considers the consequences of a decision, weighs the pros and cons, reflects, and, depending on the evidence, may come to reconsider. In the absence of a fully developed prefrontal cortex, an individual will be more inclined to follow through on a spontaneous, impulsive decision.

In a 2004 study titled "Adolescent Brain Development and Drug Abuse," Ken Winters of the University of Minnesota noted that three brain structures that undergo maturation during youth—the nucleus accumbens, amygdala, and prefrontal cortex—have important implications for understanding adolescent behavior. "An immature nucleus accumbens is believed to result in preferences for activities that require low effort yet produce high excitement... The amygdale is the structure responsible for integrating emotional reactions to pleasurable and aversive experiences. It is believed that a developing amygdale contributes to two behavioral effects: the tendency for adolescents to react explosively to situations rather than with more controlled responses, and the propensity for youth to misread neutral or inquisitive facial expressions of others as a sign of anger. And one of the last areas to mature is the prefrontal cortex... responsible for the complex processing of information, ranging from making judgments to controlling impulses, foreseeing consequences, and setting goals and plans. An immature prefrontal cortex is thought to be the neurobiological explanation for why teenagers show poor judgment and too often act before they think."

Recent MRI and brain mapping research has also focused on the cerebellum, a part of the brain formerly thought to relate primarily to physical movement, but now found to coordinate a variety of cognitive processes and to enable individuals to "navigate" social life. As Jay Giedd of the National Institute of Mental Health, among others, has pointed out, this portion of the brain is not fully developed until well into the early twenties.

Besides magnetic resonance imaging, a second strand of research employs experiments to measure...
the responses and the decision making of individuals in relation to an assortment of variables, among them, age and gender. These include tests that place an individual in simulated decision-making scenarios, such as a driving situation in which he or she must make a split-second decision on whether or not to proceed through an intersection; tests that require the individual to override a physical reflex, for example by deliberately not looking in the direction of a suddenly bright light; gambling tasks that measure risk aversion; and many more. Young men perform very poorly on all of these tasks.

**Thrill Seekers**

In turn, outcomes suggested by the findings of both of these research methods are reflected in broader social data. Changes that begin with adolescence and conclude at the end of young adulthood incline young people, and young men in particular, to seek excitement, to misjudge situations, and to dismiss danger. These inclinations are clearly readable in morbidity rates, which increase by a dramatic 200 to 300 percent between childhood and full adulthood.

Roadside accidents, for example, are one arena in which this plays itself out. In a 2005 study commissioned by the Allstate Foundation, accident fatalities and car-related injuries to young drivers were studied in collaboration with Temple University, which brought neuropsychiatric and experimental findings to bear in an analysis of accident causation. The study noted that "key parts of the brain's decision-making circuitry do not fully develop until the mid-20s. So, in actual driving situations, teens may weigh the consequences of unsafe driving quite differently than adults do. This, combined with the increased appetite for novelty and sensation that most teens experience at the onset of puberty, makes teens more disposed to risk-taking behind the wheel—often with deadly results."

Males below the age of 24 have nearly three times as many accidents as their older counterparts; their accidents are significantly more likely to be fatal; and accident analysis reveals that the young men are almost always at fault. This is not attributable, as some might suppose, to a lack of experience or technical skill. Rather, the problem lies in the propensity of young men to take risks, to misjudge or ignore danger, and to make erroneous split-second decisions on the basis of factually unwarranted optimism and overconfidence. Young people are also substantially more likely to make the decision to drive while under the influence of alcohol or drugs.

The Allstate study found that conventional drivers' education programs are not effective in countering these dangerous youthful inclinations. They can enhance skill levels and convey information, including warnings about dangers and advice about safer decisions, but they do not affect the underlying impulses and motivators. Interestingly, the expedient of placing a female passenger in the vehicle with the young male driver effects more improvement in safe driving than a lecture or a class. Having him joined by another young male, on the other hand, will increase the likelihood of reckless driving.

Another example of how young adulthood differs from both childhood and full adulthood can be found in recent research on Post Traumatic Stress Disorder—in particular, a study published in the October 2006 issue of the *American Journal of Psychiatry*. Research conducted at Walter Reed Army Medical Hospital on veterans of combat in Afghanistan and Iraq found that soldiers below age 25 are 3.4 times more likely to experience Post Traumatic Stress Disorder than older soldiers. This is in accordance with other research showing that adolescence and young adulthood are a time of particular vulnerability to stress, and an age at which grief and loss are felt with enhanced severity.

A few caveats are in order before speculating on the political significance of these insights into young people's mentality. First, this research is fairly young and we may come, at some future point, to challenge or even reverse its findings. Second, the determinism of responses and behaviors varies. The mere fact that inclinations or reflexes push an individual in a certain direction does not mean that he or she is unable to override them; it just means that this may be more difficult.

Finally, the point being made by the research is that maturation is a process. The findings do not mean that individuals are irresponsible and volatile until, at some arbitrary point, be it 18 or 21 or 22 or 24, they suddenly emerge as mature and sober adults. Maturation unfolds at different rates and to different degrees; it seems reasonable to presume, though this has not yet been studied, that much will also depend on the surrounding societal circumstances, on education, and on other variables affecting the life circumstances and influences operating on the individual young adult.

It remains nonetheless a telling fact that, within the Middle East and Muslim communities worldwide, young males constitute the most numerous participants in violent behavior and pose the greatest security threat to Western societies. Indeed,
Western European security agencies report that radicalization among European Muslim minority communities is manifesting itself at ever-younger ages, with 14 and 15 now the typical age at which young people are drawn into extremism. (The most effective recruiting tool today is the Internet.)

It is not difficult to see that propensities inherent in this age group, and effective until age 24 or so, make this subpopulation an ideal audience for radical recruitment. Membership in a clandestine terrorist cell; online linkages with glamorous, dangerous individuals; the opportunity to belong to a feared and seemingly heroic movement complete with martyrs—all of this is inherently appealing to young people. And membership comes with flaming speeches, weapons, face-masks, and all the accoutrements of a forbidden armed struggle. Better-adjusted male teenagers satisfy their craving for excitement with video games; those who belong to a disaffected minority may be drawn, at least in some instances, to the real thing.

**HOW REAL IS REAL?**

After all, when you are an adolescent, how real is real? The question cannot yet be scientifically measured, but we can glimpse an answer in some of the Muslim suicide bomber videos circulating on the Internet. Do not look, for the moment, at the chanting group of celebrants surrounding the prospective bomber. Ignore the splendid, resolute text he is reading from his notes. Look instead at his face, and take note of the momentary expression of surprise, even shock. Did this young man, when he signed up to become a suicide bomber, truly understand that this moment would come, that it would feel like this, that it would be real and irreversible? His expression suggests otherwise, but there is no turning back, not with the video camera rolling and his cheering comrades ready to pack him into the truck—where in many cases, to strengthen his resolve, he will be handcuffed to the steering wheel.

Similarly, the teenagers who place improvised explosive devices (IEDs) on the streets of Baghdad may not have thought very far beyond the money, or the approbation of their clique, with which this act is rewarded. US intelligence officers report seeing children, including a 14-year-old girl, placing roadside IEDs. Iraqi officials report capturing near the Syrian border a 10-year-old boy who had “come to wage jihad.”

This is not to dismiss the more elaborate, complex approaches that are being put forward to explain and respond to the threat of Islamist radicalism, global terrorism, and the insurgency in Iraq. Certainly, political and ideological and cultural and ethnic and economic and perhaps religious reasons play a part. But with all of that, it would be a mistake to forget that most of the minds involved are very young and acting on impulses and a logic that any proposed solutions should take into account.

It is necessary to mention, as well, that the same is true on the other side of this conflict. If America's adversaries in Iraq, for example, are primarily young, then so are the soldiers that the United States is sending forward to confront them. There is some difficulty in criticizing Islamist recruitment videos aimed at teenage viewers, when the online game “America's Army” similarly seeks to rope in 14-year-olds for subsequent service. This multiplayer interactive online game is a recruiting tool created by the US military. It is popular because of its excellent graphics and because it is free. Research conducted by the US military shows that the game is instrumental in the decision of numerous young people to join the actual armed services.

The point here obviously is not to equate the goal of these two “recruiting agencies.” The point is that 14-year-old males are largely vulnerable to the promise of thrills and danger and largely oblivious to risk, and that—if the research cited above is correct—they will not have changed enough by 17 or 18 years of age to assure that their decision to join a war and risk death and dismemberment has been judicious, thoughtful, and taken in full understanding of what it can entail. Research on young people's brain development also implies that militaries ought, at a minimum, to consider some of the revealed inclinations and predispositions of young adults in their training and deployment of younger soldiers. Thus, a propensity to interpret facial expressions as reflecting hostility can clearly be detrimental in interactions with civilian populations, for example in house searches.

More generally, developmental research raises provocative questions for a US intervention in Iraq in which the largest proportion of casualties is borne by troops aged 21 and below. Do optimistic risk assessments and split-second decisions in favor of the more dangerous path play a role? Does the United States really have a “volunteer army” if very young adults have an impaired ability to judge the consequences of their decisions? And perhaps most intriguingly of all: What would the “war on terror” look like if neither side could deploy large numbers of young men with high affect, operating on hair-trigger responses, and low on “sober second thought”?
