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**The Guns of al-Fao: Saddam, the War, and the Weapons that made it possible**

A thesis submitted in partial fulfillment of the requirement for the degree of Bachelor of Arts in  
Asian and Middle Eastern Studies

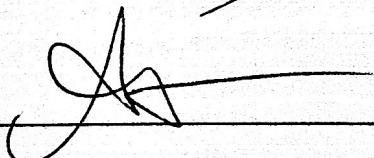
By

Travis Haycraft

Accepted for Highest Honors  
(Honors, High Honors, Highest Honors)

  
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Williamsburg, VA

April 30 May 1, 2018

**ABSTRACT:** Much has been written on the provision of arms and technologies from countries such as France, West and East Germany, the USSR, USA, UK, and others to Iraq during Saddam Hussein's war against Iran. This literature, however, tends to gloss over the material impact that aid had on the development of Iraq's military industrial complex as well as the combined material impact on the war of those arms and, more importantly, Iraq's ability to develop its industrial base. As a result, this literature obfuscates the agency Iraq had in exploiting these foreign states' callous desire for arms sales to develop an independent and self-sufficient native arms industry. In this paper, Western academic sources, Iraqi, and Iranian perspectives on the war and military industry are examined to argue that Iraq was successful in building its military-industrial complex by Iraq's own standards and to a level Iraq required to force an eventual capitulation in the war. The Iraqi development will be tracked in relation to the pivotal battles surrounding the al-Fao peninsula in 1986-88 as well as a frame narrative constructed surrounding a Soviet-made T-55 main battle tank and its life as one of billions of items of aid provided to Iraq during the time period examined. The al-Fao battles and the T-55 are both emblematic of Iraq's specific needs and political, economic, and military context and so a close examination of both is helpful in understanding the broader picture.

\* \* \*

**INTRODUCTION:** The end of the Second World War and the beginning of the Cold War saw an unprecedented expansion of the international arms market. As the two primary rivals in this global war of influence, the Soviet Union and the United States spent enormous amounts of money and resources on building and expanding their own militaries as well as on arming states in the developing world. Between 1955 and 1979, military aid to developing countries from the

Soviet Union alone increased from \$300 million to \$6.6 billion annually.<sup>1</sup> The Cold War saw less developed countries take an increasingly important role in the world of arms imports and exports with their share of the export market expanding from 5.9 percent in the early 1960s to 16.6 percent in the late 1970s.<sup>2</sup>

Thus many less developed countries not only exponentially increased their military capabilities but also, in a notable departure from the previous paradigm in which only a handful of states possessed such capabilities, often did so with the intention of designing and manufacturing arms of their own.

Iraq was one of these countries. Iraq's development, however, came at an extremely high cost in human life. When everything Saddam Hussein had built came crashing down in the few short years after the conclusion of the eight year long and intensely brutal Iran-Iraq war, the complicity of those who helped build his war machine was revealed. The symbiotic relationships among superpowers, the international arms industry, and ambitious leaders such as Saddam must be examined and learned from to prevent a repeat of the horrors of the Iran-Iraq war.

When Saddam Hussein took power in 1968, Iraq was at the lowest level of military self-sufficiency described by Timothy Hoyt in *Military Industry and Regional Defense Policy*.<sup>3</sup> As a level one state, it was almost completely reliant for all of its arms purchases on the Soviet Union, a level five state. Military self-sufficiency, of course, not only includes prominent systems such as aircraft, missiles, and so on but every type of equipment needed to conduct

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<sup>1</sup> Kanet, 'Soviet Military Assistance,' *Communist Nations' Military Assistance*, pg. 44

<sup>2</sup> Hoyt, *Military Industry*, pg. 6

<sup>3</sup> Described by Hoyt on pg. 9. In summary, Hoyt describes five levels of production, beginning with level one, in which the state relies entirely on purchases from foreign state and ends with level five, in which the state has a matured military industry and is capable of independently designing and producing all weapon systems.

military operations, from boots to tents to radar systems.<sup>4</sup> In 1968, Iraq not only produced almost nothing of military use within its own borders but also had little of the required skilled human resources to maintain its weapons, let alone to design and produce new ones.

Saddam, however, was ambitious not only on a personal but also a national scale. Throughout his reign, he leveraged the conflicts in which Iraq was embroiled together with its oil wealth to purchase more and more arms from an increasingly broad range of suppliers and to negotiate more and more favorable terms that included not just hardware but also technical support both with the equipment itself and with his own nascent manufacturing endeavors. Climbing the rungs of Hoyt's ladder of development, Iraq stood poised in 1990 on the brink of joining the United States, the Soviet Union, and others as a level five state, capable not only of producing and designing its own arms of also of supplying those indigenous arms to others.

Although the plentiful literature on the subject often discusses how the world armed Iraq, the truth is that Iraq armed itself. Thus, under the supervision of Saddam Hussein, Iraq undertook an independently motivated development project that within two decades transformed Iraq from a country with little in the way of military industry to one of the most powerful states in the Middle East. Though Iraq's arms development program may have been crude by the standards of the superpowers, it was successful in that it was the key element in concluding the Iran-Iraq war on Iraqi terms in 1988.

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<sup>4</sup> Hoyt, pg. 3

### Level One:

**In the initial under-industrialized state, the LDC [less developed country] purchases foreign weapons systems, and relies heavily on foreign trainers, technicians, and advisors.<sup>5</sup>**

*In 1967, even as Iraq was severing diplomatic relations with the United States in the wake of the disastrous Six-Day Arab-Israeli War,<sup>6</sup> the last T-55A tanks rolled off the production line of the No. 75 Tank Plant in Kharkov, in the Ukrainian Soviet Socialist Republic, near the border of Russia. The T-55 and then the T-55A had had a long and illustrious history but their time in the Soviet Army was over. A more advanced model, the T-62, had become the primary tank in the Soviet arsenal. The Soviets would continue to build the T-55A, of course - it was too useful to scrap and it was one of their most popular products in the global arms market - but production and series modifications continued only at the No. 13 Plant in Omsk and solely for export, mostly to the fast-growing Middle Eastern market.*

*One of the last of the T-55A tanks built at Kharkov was Tank #5210-005.<sup>7</sup> Like its brothers before it, its ancestry could be traced to the Second World War, which had spurred a revolution in tank design among all combatants. The Soviet Union's infamous T-34 medium tank had been a great success despite being a stopgap measure brought on by the necessities of total war. The Soviets wanted something better. Aleksandr Morozov, a highly skilled tank designer,*

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<sup>5</sup> Hoyt, pg. 9

<sup>6</sup> "A Guide to the United States' History of Recognition," US Department of State

<sup>7</sup> The story told here of the production and fate of #5210-005 is both factual and imagined. Indeed, a T 55A tank with the serial number 5210-005 was shipped to Iraq, modified, and captured in 1991. If it exists at all, the data on this tank's production and service record in the Soviet Union remain virtually impossible to access somewhere in a Russian or Ukrainian military archive. The details of the story of its service and modification in Iraq are similarly impossible to retrieve. The imagined details of # 5210-005's production, service, and modification, however, are not only within the realm of the probable but also could apply to thousands of tanks produced in the Soviet Union that saw service with Iraq in the Iran/Iraq war. Information on #5210-005 was sourced from preservedtanks.com

*designed the T-44 tank which had the light weight and mobility of a T-34 but also the armor protection and heavy gun of a tank such as the German Panther, a tank designed specifically to counter the T-34 and which had been the T-34's main rival on the Eastern Front. By 1947, almost two thousand T-44s had been built at the same Kharkov tank plant where #5210-005 was later produced. The T-44 was soon superseded by the T-54-1 and its successor, the T-54-2, which provided the bigger D-10 100mm gun, a larger turret, a more powerful engine, thicker frontal armor, and other improvements which collectively greatly improved overall performance.*

*The next generation in #5210-005's past had connections to America. In the 1950s, Morozov moved his tank design bureau to the Kharkov No. 75 plant and redesigned the T-54-2 with some technological improvements gleaned from American-made M4 Sherman tanks obtained by the Soviets as lend-lease equipment in the Second World War and American M26 and M46 tanks captured by the Chinese during the Korean War. Certain technologies within these tanks were studied to add new features to Morozov's design, which improved gun stability for greater accuracy and removed noxious cannon fumes from the turret. An upgraded D-10 gun was added, as well as a Tsh-21-22 telescopic sight, a TVN-1 infrared periscope, an R-113 radio, and improved air filtering systems. Thousands of these new T-54As were produced at factories within the Soviet Union and allied Warsaw Pact states.<sup>8</sup>*

*#5210-005's own family - the T-55 - began when the Soviet Army requested a tank that could survive on the nuclear battlefield. Morozov's design crew retained the original T-54 design and all its adjustments and then added features for protection from radiological and chemical threats, including an atmospheric overpressure system to prevent radioactive dust or*

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<sup>8</sup> Zaloga, *T-54/55 Main Battle Tank*, pg. 4-10

*chemical agents from entering the tank due to the high pressure inside. The turret had to be slightly redesigned to accommodate the protections and a new, more powerful V-55 engine was fitted as well as an improved transmission box. The newly dubbed T-55 tank entered production in June 1958. In August 1963, some new modifications were adopted and the T-55A began rolling off the assembly lines in Kharkov, Nizhni Tagil, and Omsk.<sup>9</sup>*

*With all this legacy of improvement - of increasing gun firepower, armor strength, gun accuracy, and resistance to the hazards of the modern battlefield - #5210-005 was among the last of its generation to be built at Kharkov. At the end of a short winter day in 1967, #5210-005 was driven out of the No.75 Tank Plant and onto a seemingly endless train where it began the journey that would end twenty-four years later on a battlefield in Kuwait.*

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When Saddam Hussein first gained power in Iraq in 1968, he had grand ambitions to one day become the leader of the entire Arab world. This task would not be easy, as both the Arab nations he hoped to lead and Iraq were deeply embroiled in conflict. Since 1948, Arab states such as Egypt, Syria, Lebanon, Jordan, and Iraq itself had been in almost constant conflict with the newly established state of Israel. In 1967, Israel preemptively invaded Egypt. In the confusion that immediately followed, Israel seized the Sinai Peninsula and Gaza from Egypt, East Jerusalem and the West Bank from Jordan, and the Golan heights from Syria. The armies of Syria, Egypt, Iraq, and their allies were poorly equipped and poorly trained in 1967, and as a result were swiftly defeated in less than a week - six days, to be exact. Former Iraqi general Ra'ad Hamdani remembers that school was canceled and people cried in the streets when word

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<sup>9</sup> Zaloga, *T-54/55 Main Battle Tank*, pg. 10-14



of the war's end was announced. The defeat of the Arab armies in the war of 1967 was a horrible shock for the ideology of Arab Nationalism and the hope of many in the Middle East. The resignation of Egyptian leader Gamal Abdel Nasser and, to some extent, Saddam's 1968 coup were direct results of popular unrest from the Arab armies' terrible defeat in the war.<sup>10</sup>

Meanwhile Iraq was dealing with two serious security threats: one external from Iran, and one internally from the Kurdish minority in the north of the country. Iran, ruled by the US-backed Pahlavi monarchy, had been in low-level conflict with Iraq for years. Their disagreement stemmed from two main factors, the first being Iran's hold on the province of Khuzestan, in Iran's southwest along the Iraqi border. Iraq had seen the province as rightfully Iraqi since at least 1958 under Iraqi president Abdul Karim Qasim due to its large Arab population. The other key factor in the dispute centered around where to draw the border line in the vitally important Shatt al-Arab waterway, one of Iraq's only links to the Persian Gulf and which marked the geographical border between the two nations. Iran wanted the line drawn on the Iraqi side, granting Iran full control of the river. Iraq wanted the opposite, granting Iraq full control of the river. The various compromise lines that had been drawn satisfied neither party. The initial border had been drawn centuries earlier during the Ottoman period, and reified in a series of treaties up through the independence of Iraq from the United Kingdom in the 1930s.<sup>11</sup>

Perhaps even more pertinent to Iraq's precarious military situation was a crippling conflict against Kurdish separatists led by Mustafa Barzani in the north of the country, supported by the Iranian monarchy, which wielded its oil wealth and political influence to purchase vast quantities of arms from the United States and United Kingdom and which passed along much of

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<sup>10</sup> Woods, *Saddam's War*, pg. 20

<sup>11</sup> Tehrani, 'Iraqi Attitudes and Interpretations,' *The Politics of Aggression*, pg. 11-12

their vast arsenal to the Kurdish militias.<sup>12</sup> Military strength and national security were crucial issues for Iraq for the entirety of its as-yet brief existence, and it was in this political and social milieu that Saddam Hussein grew up in.

Saddam Hussein was born to a poor and domestically troubled Tikriti family in April of 1937. His uncle, Khairallah al-Tulfah had raised him with tales of the Iraqi army's exploits, and at age twenty he committed his first assassination as a member of the Iraqi Ba'ath party.<sup>13</sup> Less than ten years later, he would be perhaps the most powerful man in Iraq, after a dramatic coup in which he rode an army tank through the gates of the palace and beat the head of the army, Colonel Abdel Razzaq an-Nayef, senseless and personally escorted him at gunpoint onto a flight to political exile in Morocco.<sup>14</sup><sup>15</sup> After the July 1968 coup, Saddam would share power with his cousin, Ahmed Hassan al-Bakr. The new regime set about ridding Iraq of political opponents in a systematic and highly efficient campaign of assassinations and kidnappings orchestrated by Hussein and his unique mixture of ambition and ability to get things done, no matter the cost.<sup>16</sup>

Saddam's meteoric rise to power was emblematic of his goals for Iraq and his methods of achieving them: lofty ambitions executed in a blunt and often brutal manner. Saddam's arms development plan which he began to formulate immediately after taking office was unique in that he did not wish to create Iraq's military industry in order to jumpstart civilian industry or to earn cash off of exports, but for specific pragmatic requirements directly related to Iraq's unique military context.<sup>17</sup> While the money that Saddam planned to spend could have been spent on

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<sup>12</sup> Timmerman, *The Death Lobby*, pg. 16

<sup>13</sup> Timmerman, pg. 1-2

<sup>14</sup> Timmerman, pg. 8

<sup>15</sup> Colonel an-Nayef would be assassinated in London by Iraqi agents in 1978 at Saddam's order.

<sup>16</sup> Timmerman, pg. 9

<sup>17</sup> Hoyt, pg. 115

civilian development or social welfare programs, Saddam believed that his ambitious goals to be the powerful leader of the Arabs would only be achieved through decisive victory in a war.<sup>18</sup> As such, immediately addressing Iraq's military situation was paramount.

When Saddam took power, Iraq had a mere 92,000 troops in its military and spent \$250 million on defense annually. Iraq had just a single armored division, with fewer than five hundred tanks, mostly older Soviet models such as the T-34, T-54, with the newest model being the T-55. A handful of older British-made Centurion tanks and World War Two-era American M24 Chaffee light tanks were in Iraq's inventory as well. Those tanks were supplemented by fewer than one hundred armored personnel carriers, mostly Soviet-made BTR-152s with twenty British-made Ferret armored cars. The air force had been built almost entirely after the 1958 military coup which switched Iraq's military patron from the United Kingdom to the Soviet Union, and as a result consisted mostly of Soviet aircraft. Iraq's combat aircraft inventory consisted of sixty MiG-21 interceptors, forty-five MiG-17/19 fighters, twenty Su-7 fighter-bombers. All were 1950s-era Soviet models. In addition to the Soviet jets, Iraq had fifty old British Hawker Hunter Mk. 9 ground attack jets leftover from the pre-1958 air force.<sup>19</sup> Furthermore, almost all of Iraq's military relied on Soviet assistance and training, even for basic maintenance. The Soviets had refused to give the Iraqis any independence on the weapons they bought from the USSR, even requiring that engines in need of repair be sent back to the Soviet Union.<sup>20</sup>

The Soviets had sold a research reactor to Iraq back in the 1960s where it was housed in Thuwaitha, south of Baghdad, but Iraq's higher education system was small and underdeveloped.

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<sup>18</sup> Woods, pg. 33

<sup>19</sup> Dupuy, *Almanac of World Military Power*, pg. 157-158

<sup>20</sup> Timmerman, pg. 27

Iraq would need to increase its focus on education to turn the reactor into more than an educational tool. Iraq's reliance on the Soviet Union for even the most basic necessities meant that it lacked a firm industrial base, let alone a skilled workforce.<sup>21</sup>

To compound these problems, Iraq's military was poorly trained and consisted largely of young conscripts without a strong education.<sup>22</sup> As a result of the humiliating defeat in the 1967 war with Israel, military leadership across the Middle East began to seriously consider what kind of structure and strategies would be needed to prevent such a disaster from happening ever again. The Iraqi army, which had served to a small extent in the 1967 war, restructured itself around a Soviet model with the help of advisors from the Soviet army. Perhaps most importantly, they realized the need for effective combined arms warfare, namely efficient cooperation between the various branches within the military. An assault is far more effective if infantry, armored vehicles, artillery, and air support all work in tandem to achieve the goal. Israel's ability to coordinate their forces was key to their victory in 1967, and Iraq and the other Arab armies set about learning how to achieve this as well. This was not an easy goal, however, as military technology by this time had largely outstripped the ability of a poorly educated and poorly trained conscript to use it effectively.<sup>23</sup>

A series of events following Saddam's rise to power quickly led Saddam to formulate and begin implementation of a plan to develop Iraq's industrial and military strength - a worsening situation with the Kurds culminating in Russia's refusal to sell more arms to Iraq, the eruption of further hostilities between Israel and its Arab neighbors, and the conflict with Iran escalating.

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<sup>21</sup> Timmerman, pg. 28

<sup>22</sup> Dupuy, pg. 156

<sup>23</sup> Woods, pg. 21

During the first days of Saddam's reign in 1968 and 1969 and despite Iraq's weak military state, Saddam attempted to tackle head on Iraq's security concerns with the Kurds, escalating the conflict against them into open warfare. The Iraqi army, however, utterly failed to suppress the Kurdish militias and the Soviet Union threatened to cut off arms sales if the brutal war continued.<sup>24</sup> After a humiliating visit to Moscow in January of 1970 in which Soviet President Aleksey Kosygin stubbornly refused to yield to Iraq's demands, Saddam returned to Iraq and negotiated a deal with Barzani - hostilities would end and Iraq would accept limited Kurdish autonomy, but this autonomy would not come into effect for four years. Saddam believed this would be sufficient time to win on his own terms.<sup>25</sup> As a result of the dual humiliations of the Soviet arms embargo and the Kurdish semi-victory, Saddam began formulating a plan to turn Iraq into a fully self-sufficient military-industrial power. It was clear to Saddam that the current military status quo and its heavy reliance on arms from the Soviet Union was untenable. The Soviets' terms gave them a significant amount of power over Iraqi military policy, and Saddam resented those chains.

Thus the first step of his plan was to begin purchasing weapons from nations other than the USSR, and Saddam believed that the best choice was France.<sup>26</sup> Although Iraq had a poorly equipped military and little in the way of industry, it did have vast amounts of oil. Believing he could wield his country's natural resources to get anything he wanted from any country he set his sights on, in 1972 Saddam made his first pilgrimage to Paris, meeting French President Georges Pompidou. He made a small purchase - a few Alouette helicopters and Panhard armored cars - nothing to change the balance of power against either the Kurdish militias or Iran, but enough to

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<sup>24</sup> Hoyt, pg. 124

<sup>25</sup> Timmerman, pg. 11

<sup>26</sup> Timmerman, pg. 12

whet both the Iraqi and French appetites for each other's goods.<sup>27</sup> This first meeting with the French seemed to indicate to Saddam that his ambitions could be realized, with the proper application of money.

Then, in October of 1973, Egypt and Syria launched an invasion of Israel. The war which followed seemed to harden Saddam's convictions that broadening the base of military suppliers was absolutely necessary but also that his arsenal needed to include more advanced weapons than the Soviets were willing to sell. After 1967 in preparation for the next war, the Iraqi army had restructured on the Soviet model and extensively studied the Israeli military- their weapons, their tactics, their ideology, everything the Iraqi soldiers would need to understand how to change their own system to defeat their enemies. General Hamdani recounts his time as a lieutenant in Iraq's 71st Brigade of the 3rd Armored Division:

“So in the 1973 confrontation, we had a much better understanding of the capability of our enemy; we knew largely what to expect. We had mainly focused on having the Israelis as our opponent. In 1967, we had the audacity, after putting all the Arab forces together, to ask, ‘Who is this Israeli force?’ But in 1973, we needed to exact revenge on the Israelis - that was the objective, regardless of the cost. When the combat started in 1973, I was still a first lieutenant, but I was completely aware of the Israeli army's leadership - the names and backgrounds of its generals. This shows you how much interest in studying the enemy we had. We considered ourselves in 1973 to be in a position to challenge the Israeli army. We witnessed how even after their losses they

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<sup>27</sup> Timmerman, pg. 13

were able to come back and balance, to rebalance their position after the initial Arab gains in the 1973 fighting.”<sup>28</sup>

Yet when Syria and Egypt invaded (after failing to inform Saddam of their secret plans), Israel was able to regroup and push them back, helped in large part, or so Saddam believed, by the delivery of enormous amounts of American weapons. American-made M60 Patton tanks in the Israeli army went toe to toe with Soviet-made T-54, T-55, and T-62 tanks in Egyptian and Syrian service, and soundly beat them despite being heavily outnumbered. French-made Mirage fighter jets shot Soviet-made MiGs out of the sky by the dozen. The Arab defeat in the war that was supposed to be their revenge for 1967 proved to Saddam once and for all that reliance on Soviet-made weapons was unsustainable not only because of the power it gave the USSR over Iraq, but also that the weapons they were willing to sell were simply inferior. If Iraq were to reach the heights Saddam envisioned for it, Iraq had to look to the West for its arms.<sup>29</sup>

Saddam was focusing on the wrong military deficiency, however, as in reality the Arab armored forces were more than evenly matched against the Israelis. In the Sinai, Egyptian T-55 and T-62 tanks were primarily arrayed against Israeli Centurion Shot tanks, an Israeli modification of the British-made Centurion main battle tank with a new engine and powerful L7 rifled 105mm cannon. The Egyptian T-62s were more than evenly matched against the Centurions, with the advantage in armor protection, yet in one particularly bloody battle, the Egyptian 25th Armored Brigade lost eighty of its ninety-six T-62s and inflicted just four tank losses on the Israeli 217th Armored Brigade.<sup>30</sup> In Israeli-occupied Golan, Syrian T-62s again went up against Israeli Centurions and even American-made World War II-era M4 Sherman

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<sup>28</sup> Woods, pg. 22

<sup>29</sup> Timmerman, pg. 14

<sup>30</sup> Zaloga, *T-62 Main Battle Tank*, pg. 35

medium tanks, modified with more modern smoothbore 105mm cannons. The Syrians lost over five hundred tanks, mostly T-55 and T-62s, and inflicted about two hundred tank losses on the Israelis. An Israeli counterattack the next day routed the remaining Syrian troops, causing a general retreat by the entire Syrian army.<sup>31</sup> The T-62 was not a bad tank; in fact the Israelis tended to believe that the Syrian and Egyptian tanks were better than their own vehicles, and its armor-piercing, fin-guided, discarding sabot (APFSDS) round was ingenious and extremely effective. Almost all modern tank guns use APFSDS rounds in tank-on-tank engagements, and it was the T-62 that introduced it.<sup>32</sup> The Syrians and Egyptians did not lose because of their weapons, but because of their training. Israeli tank gunners were able to engage at up to 1500m while Syrians lacked the experience to reliably hit their targets past 1000m, leading to a decisive gap in engagements in which Israeli tanks could destroy Syrian tanks without the Syrian tanks being able to effectively respond.<sup>33</sup>

Saddam Hussein either did not know or did not care about this fact and was determined that strength came through bigger, better, and more expensive weapons. Saddam, flush with cash, likely fell into the rather simple trap of believing the solution to Iraq's military woes was one with the easiest solution, namely buying his way to victory. Addressing the more complex issues of training and professionalism was far more difficult to solve with money. The spike in oil prices instituted by OPEC after the 1973 war gave Saddam the opportunity and cash to put his ambitious development plan into high gear, and with the health of his co-leader Ahmed al-Bakr ailing, he was truly the most powerful man in Iraq. With the new money and total power,

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<sup>31</sup> Zaloga, pg. 36-37

<sup>32</sup> Zaloga, pg. 38

<sup>33</sup> Zaloga, pg. 37



Saddam was at last able to begin active implementation of his plan to achieve military self-sufficiency.

While Saddam began reaching out to buy new weapons, the conflicts which necessitated the military expansion continued. As 1974 began, the treaty calling for Kurdish autonomy signed between Saddam and Kurdish leader Mustafa Barzani back in 1970 came to fruition. Of course, Saddam had no intention of giving autonomy to the Kurds, and the Kurds knew it. On March 11, Kurdish members of parliament in Baghdad walked out *en masse*, and within days the Iraqi army and Kurdish Peshmerga militias were clashing. The Iraqi army was not prepared. The Soviet Union, as it had during the last war against the Kurds, ended arms shipments to Iraq and refused to discuss the matter with Saddam at all. Iraqi forces quickly lost control of the situation, hunkering in their barracks at night and unable to gain any ground during the day. The Peshmerga gained control of most of Northern Iraq as Iraqi troops slowly but surely ran out of ammunition and bombs for their aircraft.<sup>34</sup>

Iraq's situation was all the more precarious because the internal conflict with the Kurds had another layer in the form of proxy conflict with Iran, who was arming the Peshmerga. Since Saddam had taken power in Iraq, the external security situation with Iraq had deteriorated significantly. Anti-Iranian rhetoric had increased, with Iraqi politicians declaring Khuzestan, a province on Iran's southwestern border with Iraq, as "Arabistan" and "part of Iraq's soil . . . annexed to Iran during foreign rule."<sup>35</sup> An Iraqi television station broadcast a map of Iraq showing Khuzestan as within Iraqi borders and another TV program showed maps with the names of Iranian cities changed to Arabic names and many were included within enlarged Iraqi

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<sup>34</sup> Timmerman, pg. 22

<sup>35</sup> Tehrani, pg. 13

borders. Iraq was also actively supporting Arab separatist movements within Khuzestan and even encouraging a rebellion by ethnic Balochis in the restive Iranian province of Balochistan along Iran's Pakistani border.<sup>36</sup>

Moreover, Iraq's original dispute with Iran over their shared border had grown to include a dispute over control of several islands in the Persian Gulf - Greater and Lesser Tonbs and Abu musa - which had been under British control until 1971 when the British withdrew the last of their forces from the Persian Gulf region (mostly in what is now the United Arab Emirates, Qatar, and Bahrain). Iran claimed its control over several of the islands though Iraq and several other Arab states protested vehemently, claiming that the United Arab Emirates were the islands' rightful owners.<sup>37</sup> Iraq convened a meeting of the Arab League and proposed severance of all ties with Iran. The proposal was rejected, but nonetheless Iraq followed through on its threats and severed diplomatic relations with Iran and expelled over 70000 Iranian citizens from Iraq. Along the Iraq-Iran border, skirmishes began to break out between the two countries between 1972 and 1974, culminating in "Bloody Sunday" on February 10, 1974, in which heavy artillery and armor was used by both sides and heavy casualties sustained. On March 7, a ceasefire went into effect days before Iraq resumed its offensive against the Kurds. On the recommendations of UN special envoy Vickman Muñoz, who had toured the border area, the Security Council ordered both sides to hold the ceasefire, to withdraw from the contested border areas, and to resume normal diplomatic relations.<sup>38</sup> The resolution was ignored, and border clashes continued, but diplomatic relations were nominally restored.<sup>39</sup>

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<sup>36</sup> Tehrani, pg. 13

<sup>37</sup> Encyclopaedia Iranica, Tonb Islands

<sup>38</sup> Tehrani, pg. 13

<sup>39</sup> Tehrani, pg. 14

More disastrously for Iraq, its renewed offensive against the Kurds at the end of March 1974 gave the Iranians an opportunity to bloody Iraq's nose without much risk to themselves, and as a result Iran began to send long convoys of weapons across the Zagros mountains into Kurdish territory, where Iranian troops helped unload the trucks. After a year of sustained failure, the Iraqis had taken, by Saddam's count, 16,000 casualties and killed 40,000 Kurdish civilians. The Iraqi army was almost completely out of supplies and the air force had "only three bombs left."<sup>40</sup> In early March of 1975, almost exactly a year after the war began, Saddam flew to meet French president Jacques Chirac and pleaded for immediate and massive French assistance. Chirac balked at the scale of aid Saddam was requesting, but Saddam did not have time to argue, because he was due in Algiers to meet with Iranian diplomats to negotiate a settlement. After a two-day conference among Saddam, the Iranian Shah, and Algerian president Houari Boumedienne, Iran and Iraq agreed to end the conflict. Iran would withdraw support for the Kurdish rebellion and Iraq would concede its claim on the totality of the Shatt al-Arab waterway, and new borders would be drawn up over the next few months.<sup>41</sup>

Thus, by 1975 the self-declared leader of the Arab world had been forced to make concessions to rebels in his own country, had been forced to beg for arms from his primary supplier, and had been forced to concede to his chief rival state portions of his own land. Saddam's apparent nadir, however, did have a silver lining. Without the constant Iranian support and with French weapons from past deals beginning to trickle into Iraq, the Peshmerga collapsed within weeks.<sup>42</sup> Although Saddam had been forced to concede territory to Iran, the exchange was not to begin until June of 1976. Then transfer was delayed for over a year; diplomats did not

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<sup>40</sup> Timmerman, pg. 23

<sup>41</sup> Timmerman, pg. 24

<sup>42</sup> Timmerman, pg. 25

meet in Tehran to begin negotiations in earnest until May 1978. When the Iraqi delegation arrived in Tehran, however, they surprised the Iranians by asking to change the location of twenty-one border markers and then left Iran without completing the negotiations. Iranian attempts to reestablish the commission both under the Pahlavi government and, after the Islamic Revolution of 1979, by the Islamic Republic were met with silence from Iraq for another year, until September of 1980, when Iraq declared war on Iran by issuing a note to the charge d'affaires of the Iranian Embassy saying, "the Iraqi armed forces are obliged to suppress the aggression of Iran on Zayn al-Qaws and Hose-Meimak."<sup>43</sup>

A lot had changed by the time Iraq declared war, enough for Iraq to go from a country bowing to Kurdish rebels because of a lack of military preparedness to a country apparently eager for war with a country several times its size in geographic area and population and armed with the latest in western military technology. Despite the humiliations Iraq had been through, Saddam's armament program was alive and well. Iraq's under-industrialized state and reliance on the Soviet Union during Saddam's rise to power and initial war against the Kurds had a profound impact on him. These experiences were the inciting action for his plan to develop Iraq's military industry and throw off the yoke of Soviet dominance and turn Iraq into a truly independent actor on the world stage.

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<sup>43</sup> Tehrani, pg. 16-17

## Level Two:

**As the industrial and technical base matures, the LDC assumes greater responsibility for upkeep, maintenance, and repair of weapons, decreasing reliance on advisors and instructors.<sup>44</sup>**

*Neither #5210-005 nor the hundreds of other T-55s also on the train were destined yet for service in the Middle East. Instead, they began their service to the Motherland as training platforms for young conscript tankists and ended the first leg of their journey over seven hundred kilometers into Soviet Russia at a massive training base in Naro-Fominsk, near Moscow. Their use was to support the education of the tankists on the operating principles of the T-55A. Soviet tank doctrine assumed that most tanks would have a short lifespan during an actual war. Therefore their tanks were designed, at the expense of durability, to be cheap and easy to build and repair. As #5210-005 served more and more conscripts it was sent more and more often to the on-base maintenance facility where ad-hoc repairs kept it in service.*

*However, by 1974, after several years of difficult service, and as Saddam was abrogating his agreement with the Kurds, more substantial work was necessary and #5210-005 was sent for repairs at the Remzavod-7 plant in Kiev. There, the turret hatch was fitted with a new cupola ring to accommodate a 12.7mm DShKM machine gun and with a laser rangefinder to improve the main cannon's accuracy. Due to older ad-hoc repairs and the new retrofits, #5210-005 was now quite unique in the details of which pieces of equipment were fitted and where, an issue it shared with many T-55A tanks at the time due to the extremely rapid pace of design tweaks and*

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<sup>44</sup> Hoyt, pg. 9

*subsequent changes in production series which were all technically in the same alphanumeric designation.*<sup>45</sup>

*Newly repaired and refurbished, #5210-005 returned to its training mission only to quickly find itself seemingly abandoned in a vast field somewhere nameless in the Russian hinterlands.*

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Throughout the turmoil of the 1970s, Saddam's program had facilitated substantial growth of the Iraqi military industrial complex. Iraq's unique security situation forced a particularly pragmatic style of development largely underestimated by Western experts.<sup>46</sup> Saddam rightly believed that Iraq lacked the educational foundation to reach the level of industrial and technological development he wished. As he explained to Arab journalists in 1974, "We must therefore cooperate and deal with States and companies who implement for us, here in Iraq, projects that our experience and capabilities cannot handle in their entirety or which are beyond our technical capabilities."<sup>47</sup> Thus as the decade passed, Saddam focused not only on straightforward purchases from a broad base of suppliers but also on training to enable domestic service and production. Oil cash that flowed in after the 1973 OPEC oil embargo dramatically raised prices gave Saddam the impetus to implement his plan in earnest.

In 1974, Iraq began the first domestic production of arms on a highly limited scale when the Soviet Union began delivering turnkey powder and propellant factories.<sup>48</sup> Despite these deliveries and the fact that deals made with the Soviet KGB gave the Iraqi intelligence services a

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<sup>45</sup> Zaloga, *T-54/55 Main Battle Tank*, pg. 15-16

<sup>46</sup> Hoyt, pg. 15

<sup>47</sup> Timmerman, pg. 16

<sup>48</sup> Hoyt, pg. 125

leg-up over the Kurds, Iraq had been burned by the Soviets too many times. Determined to end Iraqi reliance on the fickle Soviets, Saddam looked to strengthen ties with France.<sup>49</sup> In March of 1975, French experts from Avions Marcel Dassault-Bréguet Aviation, the manufacturer of the coveted Mirage fighter jet; Snecma, the manufacturer of the Mirage's jet engine; and the Government export agency Office Générale de l'Aire arrived in Baghdad and joined with diplomats from the French embassy. The French government had become a sales team.<sup>50</sup> The French team told the Iraqis they could indeed sell them the Mirage jet that the Israelis had famously used in 1973 and, in fact, could do better. Dassault had recently released a newer, better fighter jet called the Mirage F1 that was categorically superior to the Mirage 3 that the Israelis had. More importantly than the jets, however, was the technology and skills to maintain and repair the French weapons.<sup>51</sup>

Meanwhile Saddam visited Chirac in 1975 to request immediate aid in his losing war with the Kurds. Chirac refused the immediate request but did agree to future sales, and Saddam was able to make inroads on a more secret ambition. On a tour through Provence, he visited the Cadarache nuclear research center, home of the Rapsodie fast-breeder reactor, designed to create the plutonium needed for nuclear weapons.<sup>52</sup> When Saddam approached the Soviets about expanding the research-reactor aid program first begun in the 1960s, they rejected his requests. Chirac, however, was happy to oblige even the most extreme of Saddam's ambitions, as long as he could pay for it in cash.<sup>53</sup>

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<sup>49</sup> Hoyt, pg. 126

<sup>50</sup> Timmerman, pg. 25-26

<sup>51</sup> Timmerman, pg. 26

<sup>52</sup> Timmerman, pg. 28

<sup>53</sup> Timmerman, pg. 29

By the end of Saddam's visit to France he still had no help for his immediate problem with the Kurds but he had negotiated billions of dollars worth of future weapons and other contracts. The list of new contracts was expansive:

Petrochemical plants, desalination plants, gas liquefaction complexes, housing projects, telecommunications systems, broadcasting networks, fertilizer plants, defense electronics factories, car assembly plants, a new airport, a subway system, and a navy yard, not to mention Exocet, Milan, HOT, Magic, Martel, and Armat missiles; Alouette III, Gazelle, and Super-Puma helicopters; AMX 30-GCT howitzers; Tiger-G radar, and a nuclear reactor capable of making the bomb.<sup>54</sup>

France agreed to help construct a reactor complex in western Iraq called Tammuz I/II and agreed to train Iraqis in the maintenance, repair, and manufacture of many of the weapons they would be receiving.<sup>55</sup>

Saddam turned to other states as well besides France. By 1976, Iraq was buying from just about everybody. Companies from around the world from Brazil to West Germany competed for contracts to build railways, schools, chemical plants, electrical infrastructure, and more.<sup>56</sup> The flow of experts into Iraq increased exponentially. In addition, other developing countries were beginning to offer arms on the international market, often at far lower prices than superpower competitors. Yugoslavia, Egypt, China, and Brazil soon began receiving Iraqi oil and cash in exchange for weapons. Brazil in particular was vital in developing Iraq's military industrial complex, as well as Iraq's ambitious unconventional weapons program. The Brazilian manufacturing company Engesa was the first to begin selling weapons to Iraq when, in 1976,

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<sup>54</sup> Timmerman, pg. 32

<sup>55</sup> Timmerman, pg. 33

<sup>56</sup> Timmerman, pg. 14-15



they sold 150 Cascavel armored cars, 150 Urutu Scout Cars, and 2000 other trucks as part of an \$836 million deal. Brazilian scientists and engineers became ubiquitous in Iraq.<sup>57</sup>

As billions of dollars of Iraqi money began flowing into France, Brazil, and elsewhere, the Soviet Union quickly realized that not only was Saddam no longer beholden to Soviet interests but also that the Soviet Union was losing the opportunity to get Iraqi cash. Thus, in 1976, Soviet envoys in Baghdad signed a multi-billion dollar deal for the MiG-23 fighter jet, the most modern the Soviets had to offer, as well as missiles, artillery, tanks, and, most importantly, the training of Iraqi pilots and mechanics. The deal made it clear that Iraq's former dependence on the Soviets was long gone.<sup>58</sup>

In June 1977, Iraq and France finalized the Mirage fighter jet sale, which had been delayed by the French air force's reluctance to relinquish the technology to its latest electronics and radar systems. Iraq had held firm, however, and France eventually agreed to sell a multirole version of the Mirage F1, capable of performing both air superiority and ground attack roles. Iraq bought thirty-six aircraft for \$1.8 billion. Also included in the deal were 110 AMX-10P light tanks, Milan and HOT anti-tank guided missiles, and fourteen Super Frelon helicopters designed to launch Exocet anti-ship missiles. Most infuriating to the Soviets, however, was that France also agreed not only to maintain and repair former Soviet equipment but also to train Iraqis to do it themselves.<sup>59</sup>

These developments allowed Iraq to take the upper hand with the Soviets. In 1978, they signed a \$3 billion arms deal, the largest in Iraqi history, for 138 MiG-23 fighters, SCUD-B ballistic missiles, Il-76 transport planes, Mi-8 transport helicopters, SA-7 anti-aircraft missile

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<sup>57</sup> Timmerman, pg. 42-43

<sup>58</sup> Timmerman, pg. 44

<sup>59</sup> Timmerman, pg. 45-46

systems, MiG-25 reconnaissance jets/interceptors, and more. As a sign of how the tables had turned against the Soviets, in April of 1978, Saddam ordered the Soviets to move their embassy because he believed they were using its close proximity to the Presidential Palace to spy on him. The Soviets refused, and Saddam cut off their water and electricity, forcing the move within days.<sup>60</sup> Despite this substantial arms deal, by 1979, the Soviet share of Iraqi arms purchases had dropped from 95 percent at the beginning of the decade down to 63 percent at the end.<sup>61</sup>

Then in January of 1980, Iraq negotiated to purchase ship engines from the American General Electric company, a \$11.2 million deal, and the first with the United States. The U.S. Senate blocked the deal, citing Iraq's status as a supporter of international terrorism. The State Department under orders from President Jimmy Carter overruled the Senate's decision and the deal went through, along with sale of several Boeing airliners.<sup>62</sup> By opening commercial purchase deals with the Americans, Saddam was one step closer to getting the American weapons that he believed Israel had beaten the Arabs with in 1973.

In 1979, Iraq declared at the United Nations Conference on Science and Technology in Vienna that it would establish an arms industry capable of full self-reliance and security for "both Iraq and the Arab World" by the year 2000.<sup>63</sup> In 1980, Iraq had a population of about twelve and a half million, with an army over twice as large as it had been in 1970, and with 190,000 in active service and 250,000 in reserves, Iraq seemed well on its way to this goal.<sup>64</sup> Over the course of a decade, Iraqi defense expenditures increased from \$734 million in 1972 to

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<sup>60</sup> Timmerman, pg. 53-54

<sup>61</sup> Hoyt, pg. 126-127

<sup>62</sup> Timmerman, pg. 78

<sup>63</sup> Henderson, *Instant Empire*, pg. 124

<sup>64</sup> IISS, *Military Balance 1979-1980*, pg. 40

\$5.1 billion in 1979.<sup>65</sup> Iraqi arms vendors came to include Brazil, China, Czechoslovakia, East Germany, West Germany, Egypt, France, the United Kingdom, Hungary, Italy, Jordan, Libya, Poland, Romania, Spain, Switzerland, and finally the United States. And by 1980, though most of Iraq's equipment, such as the T-54/55 tanks and MiG-21s, was older Soviet equipment from the 1950s and 1960s, millions of dollars of new equipment was in place or on order.

As Iraq maintained its silence while Iran demanded that it return to negotiations to finalize the humiliating treaty signed in 1976, Iraq could count in its army 1700 Soviet-made T-54/55/62 main battle tanks, 100 Soviet-made PT76 light tanks, 200 Soviet BMP armored personnel carriers, 1500 other armored fighting vehicles primarily of Soviet make, with a few Brazilian designs. 800 artillery pieces waited behind the lines. Advanced French HOT and Milan anti-tank guided missiles were slowly trickling into Iraqi army arsenals. A hundred French AMX-30 tanks were on order, and a further two hundred Brazilian Cascavels were being delivered.

In the air, twelve Soviet Tu-22 jet bombers joined eighty Soviet MiG-23 fighters, sixty Soviet Su-7 fighters, thirty Su-20 fighter-bombers, 20 British Hawker FB59/FR10 Hunter jet fighters, and 115 Soviet MiG-21 interceptors. Thirty-two Mirage F-1C fighters and four F-1B trainers were being delivered by the French.<sup>66</sup> Thus though only a few of the new advanced systems from France or the USSR had begun to arrive, such as the Milan missiles and MiG-23 fighters, there was enough of the older equipment to cause a serious threat.

In addition, Iraq had nineteen state-run ordnance factories that produced RPG-7 anti-tank launchers, hand grenades, anti-personnel and anti-tank mines, Type 951 7.65mm pistols and

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<sup>65</sup> Hoyt, pg. 126-127

<sup>66</sup> IISS, *Military Balance 1979-1980*, pg. 40

Type 70 9mm pistols, Yugoslav-designed Kalashnikov small arms, al-Qadisiyya 7.62x54mm sharpshooter rifle based on the Soviet SVD Dragunov rifle, 250 and 500kg aircraft bombs, ammunition for 7.62x39mm small arms, 12.7mm and 14.5mm heavy machine guns, 23mm and 30mm cannons, cluster bombs, fuel air bombs, and several varieties of naval mines.<sup>67</sup> While none of these weapons systems were particularly complex or advanced, they form the backbone by which any military fights.

Nevertheless, with all of this increased firepower and industrial expansion, a declaration of war against Iran was still a declaration of war against a much larger country with a population of about forty million people and with vast quantities of western arms. Under the Shah, Iran had been one of America's best customers, and America had arguably the best weapons money could buy. The Islamic Revolution of 1979, however, appeared to have radically changed Iran's military situation. In fact, due to its close relationship with the United States, the Iranian Armed Forces were targeted perhaps more than any other organization. Equipment was sabotaged, twelve thousand army officers were purged, and dozens were executed.<sup>68</sup> In addition, although in 1980 the Iranian military had about 415,000 members, some observers at the time estimated that up to sixty percent of the force deserted during and after the Revolution.<sup>69</sup>

Nevertheless, forty percent of 415,000 was almost equal to Iraq's 190,000, and the equipment Iran still had was superior to Iraq's. The army fielded 875 British Chieftain main battle tanks, 400 American M47/48 Patton tanks, 460 American M60A1 tanks, 250 British Scorpion light tanks, 325 American M113 Armored personnel carriers, 500 Soviet BTR-40/50/60/152 armored vehicles, 710 artillery pieces (including fourteen M110 203mm self

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<sup>67</sup> Hoyt, pg. 132

<sup>68</sup> Timmerman, pg. 78

<sup>69</sup> IISS, pg. 39

propelled guns, seventy two Soviet BM-21 mobile rocket artillery launchers), American BGM-71 TOW anti-tank guided missiles, 90 American CH-47 transport helicopters, and 205 American AH-1J attack helicopters. In the Iranian Air Force, 190 American F-4D jet fighters joined 166 American F-5E/F jet fighters, 77 American F-14A jet interceptors, 14 American RF-14E reconnaissance jets, and American Phoenix, Sidewinder and Sparrow air-to-air missiles.

<sup>70</sup> The Chieftain tanks were top of the line, and the M60 Patton tanks had proved their worth in the 1973 Arab-Israeli war. The F-4 and F-14 were jets most countries could not even dream of acquiring. The F-4 had been effective in American hands in the Vietnam War, and the F-14 was perhaps the most advanced combat aircraft in the world at the time, and Iran was the only non-American customer to have the privilege to be allowed to purchase it. Plus, the Phoenix missile used by the F-14 had an extremely long range, making it a serious threat to anything the Iraqis had in their air fleet.

But this huge force, armed with the most modern equipment money could buy and trained by Americans, had been overthrown by the Islamic Revolution. Iraqi General Ra'ad Hamdani mused:

We heard of the revolutionary changes inside Iran that largely wrecked the Iranian army. That is, the Iranian army collapsed with the Shah's regime, and a popular revolutionary army started to emerge as its replacement. This appeared as a dark cloud. How could this strong, well-equipped well-trained army just fall away with the regime to be replaced by just farmers and religious folk. We could not believe that the Shah's army, with its American style and support, was not actually able to protect the Shah's government . . .

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<sup>70</sup> IISS, pg. 39

the Shah's army, built over long years, collapsed like an avalanche. Nobody expected this.<sup>71</sup>

Saddam may not have expected the collapse of the Iranian military, but when it happened, he viewed it as an opportunity. The humiliating concessions of the 1975 Algiers Accord weighed heavily on his mind, and the Islamic Republic's rhetoric around "exporting the Revolution" to Iraq pressured the Iraqi government to take action to prevent unrest within Iraq's own majority Shia population. Indeed, several young officers within the Iraqi military, members of the Shia-dominated Dawa party, were swept up in the ideological furor of the Iranian Revolution and acted, perhaps under supervision from Iranian intelligence agents, to sabotage Iraqi army vehicles in preparation for a Shia uprising.<sup>72</sup>

Thus, Iraq - no longer bound by Soviet restraint, armed by most of the world, and ready not only to manufacture its military's basic needs but also increasingly responsible for the upkeep, maintenance, and repair of their equipment - declared war. Iraqi army leadership quickly put together a war plan. Iraqi forces would advance a short ways into Iran - 10 or 20 kilometers - forcing Iran to counter with their Revolutionary Militia forces stationed around distant Tehran, as the Army was presumed irrelevant. This would leave Tehran exposed, allowing for a counter-revolution under Iraqi guidance to take power. In the ensuing chaos, Iraq could seize Khuzestan and its rich oil fields. According to General Hamdani, "No one has ever planned for a long war - this is a situation that humankind has repeated throughout time. Everyone thinks a certain action will happen and refuses to expect the war to be long. Just as in World War I, World War II, or any war." The war was expected to last no more than eight weeks.<sup>73</sup> Thus, after

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<sup>71</sup> Woods, pg. 27

<sup>72</sup> Woods, pg. 27-28

<sup>73</sup> Woods, pg. 30

ten years of arms build-up, growing tension, and hostile rhetoric, Iraq invaded Iran on September 22, 1980.

### Level Three:

**After extensive familiarization with the new technologies, states move to local assembly of foreign weapons from imported components.<sup>74</sup>**

*#5210-005 was not alone in the Russian hinterlands. Alongside it stood thousands of old T-44, T-54, and T-55 tanks, all of them casualties not of war but of the Soviet Army's large-scale transition to more modern T-62, T-64, and T-72 tanks. The T-62 had begun to supersede the T-55 even as #5210-005 was produced. Since then Morozov and other tank designers had improved and strengthened the Soviet Union's armor forces even more. The T-72 was now superseding the T-62. The T-72 was a marvel of engineering, featuring far stronger steel and ceramic composite laminate armor, a larger and more accurate 125mm D-81/2A46 gun with an autoloader system, which removed the need for a fourth crewmember to load the gun, and higher top speed, and all in a package that was not significantly heavier than the T-62.<sup>75</sup>*

*Even with its unique refurbishing, #5210-005 simply could not match the capabilities of the new T-72. The older tank sat dormant, collecting dust and snow, for nearly ten years.*

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<sup>74</sup> Hoyt, pg. 9

<sup>75</sup> Zaloga, *T-72 Main Battle Tank*, pg. 4

In addition to all its other new weapons, the T-72 was also now in Iraq's arsenal. In 1979, Iraq had begun receiving small shipments of the most advanced tank in the Soviet arsenal, the T-72 main battle tank, which featured substantially thicker armor than either the T-55 or T-62 as well as the extremely powerful 125mm D-81T/2A46 cannon. This cannon had been developed after an Iranian army officer defected to the USSR in 1969 by driving his American-made M60A1 tank across the border. Soviet tank designers felt the M60A1's 105mm gun was superior to the T-62's 115mm D68 gun and as a result developed the 125mm D-81T/2A46 cannon to counter it.<sup>76</sup> The delivery of these tanks ended, however, when Iraq's war with Iran began because the Soviet Union again embargoed arms sales to Iraq - this time because of their fear of creating an incentive for the US to seek rapprochement with Iran and because of the uncertainty associated with a militant Islamist country bordering the predominantly Muslim Soviet Central Asian Republics and Afghanistan, where the Soviets were militarily involved.<sup>77</sup> Delivery of spare parts ceased and the technicians left, taking their manuals and equipment with them.<sup>78</sup>

Because of the success of Saddam's program, however, the new Soviet embargo on arms sales and deliveries, unlike either of the previous two, had little ill effect on Iraq as the diversification and local production efforts had begun to make a significant impact on the ability of Iraqi forces to support themselves logistically. By the beginning of the war, Iraq was able to manufacture ammunition and spare parts for most of their Soviet equipment and, when they were unable to do so, the Iraqis often bought from other Arab states such as Egypt, Libya, and Jordan, who were less able than the Soviets to leverage arms sales into political favors. Assembly and maintenance sites for Iraq's still largely Soviet-made arsenal sprung up at al-Ameen, Yusufiyah,

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<sup>76</sup> Zaloga, *T-72 Main Battle Tank*, pg. 5

<sup>77</sup> Mesbahi, 'USSR and the Iran-Iraq War,' *The Politics of Aggression* pg. 74-75

<sup>78</sup> Hoyt, pg. 127



Huteen, Taji, Samawa, and elsewhere in Iraq.<sup>79</sup> Nevertheless, the Iraqis still struggled during the invasion due to poor organization and training.

These leadership and organizational issues appeared in the initial invasion, spearheaded by Iraqi tank units. The opposing forces had a certain degree of technological parity; Iraqi armored forces primarily fielded Soviet-made T-55 and T-62 tanks against Iranian M47, M48, and M60A1 tanks of American design and Chieftain tanks from the United Kingdom. The Iraqis had the advantage in numbers and consistency (the more varieties fielded by an army, the lower the ability to exchange spare parts between them) as well as perhaps the advantage in having slightly more powerful guns in the T-62 than most of what the Iranians had. These early days of the war saw perhaps the most intense tank-on-tank combat in the entire war, with the Iraqi 3rd Armored division, equipped with T-62s, crossing into Khuzestan and engaging with the Iranian 92nd Armored Division, equipped with Chieftains. Despite the Iraqi numerical advantage, however, the Iraqis did not immediately achieve the victory they expected. As with Egypt and Syria in 1973, the Iraqi armor unit's failure to achieve decisive victory despite their advantages was largely due to a deficit in effective training and gunnery experience. While Iraqi losses were not quite so lopsided as the Arab losses had been seven years prior, nonetheless Iraqi advances into Khuzestan were far less swift and decisive than the generals in Baghdad and Saddam had hoped.<sup>80</sup>

Moreover, the troops and officers on the front lines were confused by disorganized leadership. Orders from headquarters were unclear or contradictory, commanders did not know what their objectives were, and little or no intelligence was provided to the troops. General

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<sup>79</sup> Hoyt, pg. 127

<sup>80</sup> Zaloga, *T-62 Main Battle Tank*, pg. 38

Hamdani, a reconnaissance battalion commander in the II Corps at the time, describes a breakdown between the high level divisional officers and the troops in the thick of the fighting.

The problem was that most of the division commanders at the time were not competent commanders. We [the professional soldiers] looked at things differently because [the political generals] came into those commanding positions due to their loyalty to the [Ba'ath] party . . . My division commander was one of the worst division commanders, since he was one of these [Ba'ath] appointees. He did not fully understand his role and how to protect his sector, in this case regarding the sector for our paratroopers airdrop. Because of his incompetence, I had to carry out his [responsibilities] in addition to all of my tasks.<sup>81</sup>

According to General Hamdani, Saddam's paranoia and subsequent reliance on political leadership over the military would prove a serious and continuing problem for the Iraqi forces.

This failure in planning also appeared early in the war in Iraq's underestimation of the opposition it encountered during the battle of Khorramshahr, a major city directly on the border between the two countries, and the centerpiece of Iraq's plan to seize Khuzestan. The Iraqi strategy involved reliance on their special forces units, elite troops who had been trained in Egypt, Turkey, or the Soviet Union. In contrast, Khorramshahr was defended by poorly armed militias. The brutality of the initial fighting wore down Iraq's special forces units into irrelevance due to the enormous casualties sustained. Moreover, the Iranian's tenacity in defense allowed large numbers of reinforcements to begin entering the combat zone particularly as the regular Iranian army was increasingly supplanted by the Army of the Guardians of the Islamic

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<sup>81</sup> Woods, pg. 32-33

Revolution, or Revolutionary Guards.<sup>82</sup> In the face of this unexpected resistance to what was originally a surprise attack, Iraq took over a month to capture Khorramshahr and by the beginning of 1981 its ground forces had still not reached the critical Zagros Mountain passes necessary to create a handful of narrow choke points which Iraqi troops could easily block to prevent further Iranian troops from reinforcing Khuzestan.<sup>83</sup>

The Zagros Mountains, which largely form Iraq's eastern border with Iran, also formed a barrier for Iraq's air force, which attempted a surprise air strike to cripple Iran's air force in one fell swoop, a strategy emulating Israel's highly successful opening blow in the 1967 war. Iraq had not yet begun receiving large quantities of the French Mirage fighter jets and so was relying on its older Soviet MiG-21s and other aircraft to attempt to achieve supremacy in the air over Iran. The Iranian air force had superior aircraft and more of them, most notably the American-made F-14 jet fighter and the American F-4 multirole jet, but since the Revolution the air force's ability to actually field their equipment was dubious at best. Due to the Air Force's previous close ties with the Shah's government, the Revolutionary government imprisoned or banned from flying many of the pilots who could effectively counter the Iraqi air force. Nonetheless, the Iranians were able to negate any advantage the Iraqis may have had largely through capitalizing on geography. Iraqi Soviet-made supersonic jet Tu-22 bombers had the range to cross the mountains and reach targets deep within Iran, but the escort fighter aircraft such as MiG-21s lacked similar range to follow them. Furthermore, Iraq was unable to effectively jam Iranian radar sites due to the Zagros Mountains as well as a deficit in the required technology. This forced Iraqi bomber aircraft to fly low through the mountain valleys to avoid

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<sup>82</sup> Bill, 'Morale vs. Technology,' *The Politics of Aggression*, pg. 200

<sup>83</sup> Woods, pg. 47-48

detection by radar, which in turn meant that the Iranian air defense units were able to quickly discover which paths through the valleys were viable and to set up their defenses accordingly, thus greatly reducing the efficacy of Iraqi air strikes within Iran at this crucial early phase of the war.<sup>84</sup>

Meanwhile, Iraqi failures in training and planning became all too apparent in the realm of helicopter warfare. Helicopters had their usefulness in combat proven during the Portuguese Colonial Wars in Mozambique, Angola, and Guinea-Bissau and were made publicly famous during the American war in Vietnam. In one of the few well-planned and executed operations in the early days of the war, in October of 1980 the Iraqis used all of their available helicopters and were successful. This was the exception, however, as during the early war Iraqi air defense operators were too poorly trained to be able to distinguish between Iraqi and Iranian aircraft and as a result often used their Soviet-made SA-7 MANPADS missile launchers (man-portable air-defense system) to shoot down Iraqi helicopters and other aircraft, mistaking them for Iranian aircraft. To prevent these friendly-fire incidents, the Iraqi leadership quickly instituted a policy that when Iraqi aircraft were being used, all air defense systems in that area of operations were to be shut down. Predictably, this allowed Iranian aircraft free reign during those periods in which Iraqi anti-aircraft systems could not respond to their incursions over Iraqi lines. General Hamdani recalls this rather disastrous policy:

I remember an incident in the middle of one battle, when I was up on top of a hill and saw two Iranian Cobras [American-made attack helicopters sold to the Shah's air force] coming from behind our forces and firing at ground targets. They were flying so low that

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<sup>84</sup> Woods, pg. 35

I could actually see the pilot and his long beard. I gave orders for the ground forces to respond, but they replied they had orders to do nothing, because everything was shut down, so that they could not use their anti air [sic] capabilities.<sup>85</sup>

It was now abundantly clear that the war was not going to last a quick eight weeks. As the war dragged on it evolved into attritional warfare and strategic stalemate. Unexpected failures within the Iraqi forces and a surprising amount of skill and tenacity on the part of the Iranian defenders compounded to make the war a grueling and costly affair.

The fighting wore down both sides quickly, but the Iranians were better able to capitalize on the equipment they had available. In late 1981 and early 1982, the Iranians launched a well-executed counteroffensive that put their limited armor capabilities to expert use, destroying up to seven hundred Iraqi tanks with comparatively light losses on the Iranian side and forcing most Iraqi troops out of Iranian territory.<sup>86</sup> Nonetheless, it was not all failure on Iraq's side, as their coterie of arms providers were providing enough aid to prevent total disaster.

As tank losses mounted on both sides, the Iraqi arms procurement program looked to Warsaw Pact states and China to provide replacements. Unfortunately for Iraq, Iran did the same. While the Soviets had paused deliveries of the T-72 to Iraq, several other Warsaw Pact states produced versions of it and began shipping them to Iraq. Poland, for example, began deliveries to Iraq with a shipment of two hundred and fifty T-72M tanks in 1982. Iran, meanwhile, also obtained many T-72s, either captured from Iraqi forces or delivered by Libya, who seemed quite willing to sell arms to both parties of the war.<sup>87</sup>

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<sup>85</sup> Woods, pg. 36

<sup>86</sup> Zaloga, *T-62 Main Battle Tank*, pg. 39

<sup>87</sup> Zaloga, *T-72 Main Battle Tank*, pg. 37

China also sold to both sides. The Chinese had obtained licensed production of several models of early Cold War Soviet tank models, most notably the T-54 and T-55, which by the 1980s were largely relegated to reserve and auxiliary units in Soviet service but had quickly become the tank of choice for Soviet and Chinese proxies in conflicts from Nicaragua to Angola to Vietnam. The Chinese made only slight modifications to the T-54 and T-55 models they produced (including an engine fan borrowed from the T-62, an example of which they had captured in 1969 during a border skirmish with the Soviets in far northeastern China along the Ussuri River) and designated their initial T-55 copy the Type 59 and their T-62-inspired version the Type 69. Both versions retained the obsolete 100mm gun of the original T-55, despite being outclassed by the 115mm smoothbore gun of the T-62 or the 105mm L7 rifled cannon used by most NATO armies.<sup>88</sup> China was more than willing to sell their tanks to both Iraq and Iran, and while Iraq was better positioned to receive the Chinese tanks as Iraq already had the logistical system in place to adequately field Soviet-designed tanks, Iran also bought large numbers of Chinese-built Type 59 and Type 69 tanks to fill positions formerly occupied by American M47, M48, M60 and British Chieftain tanks. During the war, China would export nearly two thousand tanks to Iraq and Iran.<sup>89</sup> Iraqi tank units often abandoned Chinese-made tanks if they were broken down or damaged as it was cheaper to simply buy a new one than bring the damaged vehicle back for repair.<sup>90</sup>

French military aid, which had also begun in small amounts in the mid-1970s, was now making its appearance and impact on the battlefield, albeit not on a large scale. While the Mirage jets had not yet become a relevant factor in the skies, French electronic warfare equipment

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<sup>88</sup> Zaloga, *T-54/55 Main Battle Tank*, pg. 37-38

<sup>89</sup> Zaloga, *T-54/55 Main Battle Tank*, pg. 42

<sup>90</sup> Hoyt, 127

(ground surveillance radars, radio decryption technology, etc.) such as the RASIT ground surveillance radar system first delivered to Iraq in 1976, allowed Iraqi reconnaissance and intelligence units to detect Iranian troop movements and plans, letting Iraqi troops to prepare accordingly.<sup>91</sup>

Another issue faced and overcome by the Iraqis was the question of manpower. Iran had a substantially larger population than Iraq, and as a result had an obvious advantage in what was becoming a very costly war of attrition. In response, Iraq developed the Popular Army, a reserve force that helped rapidly expand the size of the Iraqi military while still maintaining the economy as Iraqi factories and oil wells still needed workers. Soldiers in the Popular Army were only required to serve for two or three months at a time in duties behind the lines, at logistics depots, maintenance bases, and defensive lines. After they finished their short term of service, they could return to work in the civilian economy.<sup>92</sup>

Despite the broad range of states providing arms and the improvements in the Iraqi logistical and organizational structure, the offensive into Khuzestan still ground to a halt. By the time Iraqi troops had almost entirely been pushed out of Iran in spring 1982, Iraqi troops were beginning to realize that there was no way they could win the war they thought they would be fighting. General Hamdani states:

This was a fact of the war. Where could we go, if we wanted to advance to a certain depth in Iran? For example, let us say that as a division commander you wanted to go more than forty kilometers into Iranian territory, what would be the point? Going this far would not get you any closer to Tehran, because it would still be another eight hundred

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<sup>91</sup> Woods, pg. 37

<sup>92</sup> Woods, pg. 40

kilometers to the Iranian capital. So this imposed a natural limit on the Iraqi offensives. We began to assume a more defensive position. We did not have the capability to push a division thirty- forty kilometers into Iran, and such an advance would not have put an end to the war. Our strategy had to become defensive because of the depth of their territory. Cities like Tehran and Isfahan were far too deep in their nation. We knew we no longer had the capability to advance.<sup>93</sup>

As 1982 came to an end, the two sides seemed settled in for a long, drawn out war of attrition. Then Iranian troops took the offensive and attempted to push into Iraq with the intention of deposing Saddam Hussein and liberating the holy city of Karbala, the most important city to Shia Muslims, which account for over ninety percent of the Iranian population. This was an attractive goal for an Iranian government still fresh from its religiously inspired revolution.

While geography had helped Iran in defense in the first two years of the war, with their assault on Iraqi territory the situation flipped in Iraq's favor. When Iraqi troops had been the invaders, their armored divisions were hindered by the rough and mountainous terrain that constitutes almost the entirety of the border region within Iran. When Iranian troops went on the offensive into Iraq, however, they were required to leave the sanctuary provided by those same mountains and advance into the relatively flat, dry, open plains of southern and eastern Iraq. Where the Iranians had been able to effectively mobilize infantry in the mountains to neuter the Iraqi armored columns, in the plains of Iraq the Iraqi armor now had the advantage over the

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<sup>93</sup> Woods, pg. 48-49



infantry-reliant Iranians. General Hamdani describes Iranian strategy during the period of 1982-1984:

The Iranians started to mobilize, since we had taken up strategic defense positions. They began to pull troops from all their sectors and from the depths of their country and put them in the staging areas . . . They attacked from many directions and created a long, drawn-out frontal battle. Moreover, they had the flexibility to reinforce successful units. If one unit at this point along the border were to penetrate our defenses, they would funnel more people in and keep the momentum going in this direction . . . [However] Iranian infiltration was not deep, because it relied on infantry, and they were only infiltrating during the night. So they could not move more than ten kilometers at night. The result was limited infiltration . . . Approximately ninety percent of Iranian attacks were successful in the early stages, but the attacks invariably lost their momentum. They would seize control of an area, suffering serious losses, and then we would shell them extensively with our artillery and bomb them with air support. But they were very persistent. The Iranians later realized that they could not achieve success on open ground, so they began to concentrate on the areas that neutralized the movement of our armor and weakened the impact of our air forces and artillery, such as in water-flooded areas, marshes, and sand dunes . . . In 1984, the Iranians started to infiltrate the marsh areas [in Southern Iraq] and so our armored elements were not able to get at them because of the water and high vegetation.<sup>94</sup>

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<sup>94</sup> Woods, pg. 50-53

Iranian strategy was fully oriented around a war of attrition, assuming their manpower advantage would eventually overcome Iraq's equipment and technological advantage. Mass infantry assaults by Iranian soldiers may have been extremely costly for the Iranians, but they were chipping away slowly but surely at Iraq's defensive lines. The war devolved into brutal, close quarters massacres on both sides of the line.

Because Saddam continued to work to increase his global contacts, however, the invasion by Iran proved to be a diplomatic advantage for Iraq. First, the Soviet Union again reversed its position and once more began selling arms to Iraq. The Soviets, while not particularly fond of Iraq, viewed Iran as a potential threat to their interests elsewhere in the Muslim world, particularly in Afghanistan. Fears of Iranian rapprochement with the United States were put to rest by the Iranian government's apparent conviction that Iraq was an American puppet state and that the Iraqi invasion was an American effort to undermine the Revolution. The Soviet Union also saw an opportunity to re-establish itself as a key actor in the Arab world. By backing Iraq, it was eventually able to begin full diplomatic relations with Oman and the Emirates as well as to sell anti-air missiles to Kuwait.<sup>95</sup> While Moscow was warming relations with Baghdad, Saddam was also looking westwards to Washington. In February and March of 1984, the Reagan administration opened full diplomatic relations with Iraq.<sup>96</sup>

Diplomacy, however, was not Saddam's primary goal. Developing Iraqi military strength was. To that end, Saddam undertook and continued two different avenues toward creating weapons on Iraqi soil designed to break the attritional gridlock into which the war had devolved -

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<sup>95</sup> Mesbahi, pg. 79-80

<sup>96</sup> Mesbahi, pg. 81

developing the ability to produce and deploy chemical weapons and the ability to construct its own Iraqi long-range missiles.

Despite the fact that Iraq had signed the 1925 Geneva Protocol written in the aftermath of mass chemical death in the First World War banning the use of chemical weapons in warfare, Saddam's plan for military supremacy had always included the possibility of unconventional weapons technology.<sup>97</sup> His plan to get nuclear weapons was put on hold in 1981 when Israeli jets bombed the reactor the French had been building in the Anbar desert, so chemical weapons were the logical next step, as they were far easier to develop in large scale for a relatively technologically undeveloped country like Iraq.<sup>98</sup> As early as the 1970s, Saddam's main agents had begun meeting with several West German chemical companies. With the help of West German company Thyssen Rheinstahl Technology, construction began slowly in 1981 on a pesticide plant in Suwaira, south of Baghdad, capable of producing nearly four thousand tons a year of phosphate chemical weapons precursor chemicals. While Thyssen Rheinstahl denies knowledge of the plants actual use, this claim is highly suspect. The layout of the plant did not fit a standard pesticide plant model, and it was too small to be particularly useful in its official capacity. The project was also given a disproportionate amount of security by the Army.<sup>99</sup> Meanwhile, Saddam's procurement agents were negotiating with Karl Kolb GmbH, a West German chemical company. Karl Kolb's salesmen in Iraq, Klaus Franzl and Helmut Maier, met frequently with Amir al-Sadi, Iraq's main man on chemical, biological, and nuclear weapons procurement and began plans for a massive chemical weapons plant in Samarra, north of Baghdad. Officially, the plant would be for pesticides, but Franzl and Maier knew full well the

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<sup>97</sup> Shemirani, 'The War of the Cities,' *The Politics of Aggression*, pg. 25

<sup>98</sup> Hoyt, pg. 155

<sup>99</sup> Timmerman, pg. 106

true purpose of the Samarra plant.<sup>100</sup> The massive facility covered nearly two hundred square kilometers, was intentionally spread out to make targeting by Iranian bombers more difficult, and was riddled with hardened buildings and bunkers. The first production line opened in 1983, and by 1986 there were six lines producing mustard gas, sarin gas, and tabun gas.<sup>101</sup>

The first large-scale use of these Iraq-made chemical weapons occurred in February of 1984. In what Iranian planners called the “Khyber Operation,”<sup>102</sup> Iranian commandos had managed to quietly sneak through the Howizeh marshes under cover of darkness onto Majnoon island, north of Basra, and overwhelm the small garrison. The next day tens of thousands of Iranian regular troops reinforced them. Iraqi tank-reliant counterattacks got bogged down in the soft, wet soil and became easy targets for the Iranians. The Iraqi troops were losing, badly. To break the Iranian lines, Iraqi generals authorized the use of chemical weapons, and Iraqi helicopters of French, Soviet, and German make joined with Soviet-made Su-7 attack jets to drop hundreds of canisters of gas produced by the plant at Samarra. The results were immediate and horrific.

The Iranians, who wore no protective clothing, felt ill almost immediately. Within minutes they began vomiting a yellowish liquid, and their skin turned red. By the time medics reached the battlefield, some of the troops were already dead, their faces horribly blackened by the gas. Others had amber colored blisters all over their bodies and were having trouble breathing.<sup>103</sup>

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<sup>100</sup> Timmerman, pg. 110-111

<sup>101</sup> Timmerman, pg. 112

<sup>102</sup> Shemirani, pg. 33

<sup>103</sup> Timmerman, pg. 143

Despite Iraq's mass usage of chemical weapons across the front beginning on Majnoon Island, Iranian troops held on. Majnoon Island remained in Iranian hands. The chemical weapons, while they killed and maimed brutally, were more of a psychological weapon than practical. General Hamdani was not particularly fond of Iraq's usage of them but not because they were illegal or brutal:

We feared the effects of the chemical weapons on ourselves because of the wind. The problem we had was that when our soldiers wore their protective masks, it would also limit their combat effectiveness, and the masks were generally uncomfortable. In the case of the wind changing directions, it would strike us, and we had to continue fighting while wearing the protective masks.<sup>104</sup>

These early Iraqi chemical weapons were not particularly sophisticated, producing perhaps only a twenty percent fatality rate (as in only twenty percent of those exposed to the gas died from its effects). Iranian government statistics claim that during the Khyber Operation, Iraq launched forty-seven chemical air attacks, resulting in thirty-four deaths and over two thousand injuries.<sup>105</sup> The problem lay in the mixture the Iraqis were using, a combination of "yellow rain, yperite, and Tabun." These faults were quickly corrected, however, and by Iran's spring 1985 Badr Operation the fatality rate was increased to roughly sixty percent with a new mixture of hydrogen cyanide, mustard gas, Sarin, and Tabun.<sup>106107</sup> Saddam's plan for military independence and supremacy appeared to be succeeding on the chemical warfare front.

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<sup>104</sup> Woods, pg. 55

<sup>105</sup> Shemirani, pg. 35

<sup>106</sup> Shemirani, pg. 33

<sup>107</sup> Timmerman, pg. 145-146

Iraq also began making progress on another front - the construction of long-range ballistic missiles. From 1982 through the beginning of 1986, most countries, including Iraq, believed that the war had entered a perpetual stalemate and that nothing serious was set to change. The Soviet Union continued a small amount of aid to Iraq, commensurate with deals signed in the 1970s, and France and other countries were slowly but surely arming Iraqi army units and helping build up Iraqi research and production facilities. There was not very much urgency in their efforts, however, due to the perceived stalemate. As one Iranian scholar wrote:

[T]he rest of the outside actors involved in the conflict [had] concluded that in spite of occasional eruptions, the Iran-Iraq war had reached a state of strategic stalemate . . . This complex regional conflict appeared to have acquired a life of its own, to be a “forgotten war,” as though it were a permanent though nondefinitive, component of regional politics.<sup>108</sup>

As part of this strategic stalemate, Iraq undertook indiscriminate bombing strategies against Iranian civilian as well as military targets. Within days of the war’s beginning, Iraqi planes had bombed the city of Ahvaz, in the center of Khuzestan province, and Dezful, another city in Khuzestan, killing hundreds of civilians and wounding hundreds more. Iraqi missiles, rockets, and artillery joined with the aerial bombardment and by the end of 1985 over six thousand Iranian civilians had been killed and twenty-one thousand injured.<sup>109</sup>

Iraqi bombardment of Iranian civilian targets, however, was severely limited by the relatively short range of Iraq’s Soviet-made SCUD and 9K52 Luna/9M21/FROG-7 missiles, which could not hit Tehran. In 1984 Lieutenant General Amir Rashid al-Ubeidi, head of Iraq’s

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<sup>108</sup> Mesbahi, pg. 82

<sup>109</sup> Shemirani, pg. 37-38

missile and aerospace procurement programs, turned to what would seem an unlikely partner: Argentina. As part of their nuclear program, the military junta in Argentina had been secretly developing a long-range ballistic missile program called Condor with the help of elements of the West German aerospace company Messerschmitt-Bölkow-Blohm (MBB), Italian defense company Snia BpD, and French electronics company Sagem.<sup>110</sup> Saddam was unconcerned with the fact that the program had undergone substantial scrutiny during and after the 1982 Falklands War between Argentina and the United Kingdom because he did not plan to actively purchase the Argentine missiles. Instead, he intended to help fund the research and development and then incorporate the technology developed into Iraq's own missile programs. Iraq dealt with the program almost exclusively through Egyptian intermediaries.<sup>111</sup> After the Americans began a one billion dollar a year food aid program to Iraq, Saddam felt he had the financial freedom to invest more heavily in the missile program and other research, development, and production programs of new weapons, reaching fourteen billion dollars a year by 1984.<sup>112</sup> Thus, in 1984, Iraq was able to begin construction of the Saad-16 missile research and production facility outside of Mosul with the help of some thirty-eight West German and Austrian firms. Hundreds of European engineers moved in to facilities at the Saad-16 site, always followed by Iraqi security personnel.<sup>113</sup> Iraq's ability to construct its own missiles had taken a substantial leap forward.

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<sup>110</sup> Timmerman, pg. 150-154

<sup>111</sup> Timmerman, pg. 155

<sup>112</sup> Timmerman, pg. 157

<sup>113</sup> Timmerman, pg. 158

#### **Level Four:**

**Assembly, in time, leads to licensed production with increasing proportions of local content and decreasing reliance on imported components and parts.<sup>114</sup>**

*In 1986, the field of almost abandoned tanks deep within Russia proved to be a goldmine when Iranian troops launched their wildly successful al-Fao offensive, routing Iraqi troops along that peninsula in southern Iraq. The alarmed Soviet Union ramped up its exports to Iraq. #5210-005 was loaded back on board a locomotive and taken to the Black Sea port of Odessa, placed aboard the merchant vessel Leninsky Komsomol, and shipped to the Red Sea port of Aqaba in Jordan, where it was placed on a flatbed truck, driven across the desert into Iraq, and inducted into the 1/12th Brigade of the 3rd Saladin Armored Division.*

*At last, all of its design legacy was put to the test. #5210-005 first saw action in several small skirmishes near Majnoon Island against Iranian infantry units where it did not escape unscathed. An Iranian American-made anti-tank missile struck the turret. #5210-005 once again left the field for repair but this time it was transported to the Iraqi Taji tank repair facility just north of Baghdad. Iraqi engineers added a new turret lifted from a Chinese Type-69 tank and replaced the road wheels with more modern “starfish” models. The Iraqi engineers also substantially upgraded #5210-005 in general. They applied large bricks of laminate armor made from layers of steel and rubber to the front of the hull and turret and added a large storage box to the turret’s rear plus a night-vision scope to the gunner’s optics package.*

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<sup>114</sup> Hoyt, pg. 9



*The new Iraqi-engineered modifications to Morozov's original design served #5210-005 well. In April of 1988 it was transferred to the headquarters company of the 15th Mechanized Brigade of the 5th Mechanized Division, where it helped at last to drive Iranian units out of Iraqi territory while receiving virtually no damage save for a few scars from machine gun bullets.<sup>115</sup>*

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The static war of attrition was not really as static as many believed. The Iranian military had been developing and practicing new infiltration tactics in small scale offensives since 1982. As the military professionalized in the chaos following the Revolution and initial Iraqi invasion, the Iranians began putting together an offensive that would radically change the way the war was fought and would bring it to a dramatic final battle. In the early weeks of 1986, Iranian troops began assembling on the Iranian side of the Shatt al-Arab river, across from Iraq's vital al-Fao peninsula, which controls Iraq's access to the Persian Gulf. The surprise attack which followed on February 11, 1986, not only routed the Iraqis from al-Fao but also reignited the development plan in three ways: continued purchases from outside sources, internal growth and restructuring of weapons needed for the continuation of the war, and the search for and development of weaponry that was uniquely Iraqi in conception, design, and production.

Iraqi commanders expected an Iranian attack but were convinced that it would come near the center of the Iraqi defensive lines, east and north of Basra, in the III Corps sector. Their expectation was not surprising as Iranian signals intelligence units created a web of false radio signals suggesting exactly that. Moreover, most of Iran's previous attacks had hit this sector, with the goal of encircling and capturing Basra, though all had eventually been stopped by

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<sup>115</sup> Zaloga, *T-54/55 Main Battle Tank*, pg. 15, 36

determined Iraqi resistance with high casualties to both sides. General Hamdani claims that field-level intelligence and reconnaissance units were aware that the offensive was instead coming in the southern VII Corps sector. Even if he is correct, Iraqi planning did not account for it and as a result, when the offensive, code named *Amaliaat-e Valfajr 8* or Operation Dawn 8 by Iranian central command, did begin in the VII Corps sector in al-Fao, the Iraqis were unprepared.

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The Iraqi 26th Division stationed on al-Fao at the time had prepared some minor defensive lines but due to Iraq's assumption that the attack would come elsewhere, the defenses were not sufficient. In contrast, Iran had built up a substantial local force superiority both in numbers and artillery firepower, using an entire Corps of several divisions. In the dark early hours of February 11, elite Iranian units crossed the Shatt al-Arab river on small boats and infiltrated the Iraqi defensive lines with substantial artillery fire support. Tens of thousands of Iranian regular army and Revolutionary Guards units followed them, quickly overwhelming the limited Iraqi defenses and routing the relatively small Iraqi garrison.<sup>117</sup> The offensive was extremely well planned and executed, and it used every aspect of the Iranian military, including the navy, army, air force, and Revolutionary Guards. General Hamdani described the battle:

[The Iranians] demonstrated a high-quality performance of integrated operations. There were thousands of boats that fit four hundred people, rushing in before dawn. These were rubber boats, wooden boats, and big boats all transporting thousands of soldiers in a few moments under the cover of intense artillery and air bombardment of the area. We downed some of the Iranian aircraft and the recovered pilots gave us information about

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<sup>116</sup> Woods, pg. 71

<sup>117</sup> Woods, pg. 73

the attack. These were important since our leaders would not believe our reports without that evidence. One of the POWs was an air force captain, and he gave us the plan . . . and told us that there was at least a corps level force in the attack. This was when the strategic command back in headquarters finally began to pay attention.<sup>118</sup>

The sudden and unexpected attack was devastating. The Iranian troops had completely routed the Iraqis and due to the terrain, the Iraqi troops were barely even able to retreat. A massacre followed, as Hamdani describes:

The nature of the terrain in this area was so dusty in dry periods and muddy when raining, that it was always difficult to maneuver. We could only stay on the roads, and with all the traffic funneled along the only two roads, it was terrible- the infantry, the BMPs [a Soviet-made armored fighting vehicle], the armor. Because of the fact that there were only two roads, the Iranian forces were able to continuously shell both. They knew about the terrain conditions and that the roads were the only way in or out of transportation . . . there were many losses caused by the intense shelling . . . the land became barren. I had never seen such intense bombing throughout the war.<sup>119</sup>

Only a tenacious and extremely costly defensive action by Iraqi Republican Guards, Iraq's best units, was able to contain the Iranians to al-Fao. A hastily assembled Iraqi counterattack on al-Fao failed, and another attack to capture the Iranian town of Mehran in retaliation was initially successful but an Iranian counterattack pushed the Iraqis back and captured a significant amount of equipment and prisoners of war. In these battles, the question of technological parity never arose. The Iranians had simply successfully undertaken a complex, sophisticated, and highly

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<sup>118</sup> Woods, pg. 74

<sup>119</sup> Woods, pg. 75

professional operation that proved their growing tactical and strategic abilities. Moreover, the capture of al-Fao meant that Iran now controlled almost all of Iraq's access to the Persian Gulf, put Iranian artillery within range of Kuwait, and threatened Iraq's main naval base at Umm Qasr.

Many other states observing the conflict began to doubt Iraq. Observers in Kuwait, Saudi Arabia, and elsewhere began to seriously believe that Iraq's forces might soon begin to collapse across the entire front line under the Iranian onslaught.<sup>120</sup> To compound Iraq's new troubles, the army had lost vast amounts of equipment and ammunition in the battles around al-Fao and needed to replenish their stocks. Other states, however, became much more circumspect in their willingness to open lines of credit with Iraq. France in particular was especially harsh in its desire to have outstanding debts paid before signing new deals.<sup>121</sup>

Once again Iraq's longstanding, if often fraught, relationship with the Soviet Union came to its aid. In the aftermath of Iran's victory in al-Fao, the Soviet Union massively increased shipments of weapons to Iraq. Between 1986 and 1988, the Soviets provided about nine billion dollars worth of arms and technology to Iraq, including "more than 2,000 tanks (including 800 T-72s), 300 fighter aircraft, almost 300 surface-to-surface missiles (mostly SCUD-Bs), and thousands of pieces of heavy artillery and armored personnel vehicles."<sup>122</sup> Thus, in the buildup to Iraq's eventual counteroffensive, Iraq had 4500 T-54/55/62/72 tanks of Soviet design and 1500 T-59/69 tanks of Chinese make.<sup>123</sup>

But Saddam knew well that purchases from the Soviet Union would not be enough. It was clear that in order to effectively retaliate against Iran, the Iraqi military industrial complex

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<sup>120</sup> Mesbahi, pg. 83

<sup>121</sup> Hoyt, pg. 130

<sup>122</sup> Mesbahi, pg. 89

<sup>123</sup> IISS, *Military Balance 1988-1989*, pg. 101

needed expansion and reformation. Consequently, in January of 1987 Saddam handed control of the State Organization for Technical Industries (SOTI), the branch of the Ministry of Defense responsible for arms production and a large amount of procurement, to Hussein Kamil, Saddam's cousin and former bodyguard.<sup>124</sup>

Under Kamil's tenure at SOTI, the efficiency and capacity of Iraq's military industry was greatly increased. The war allowed much bureaucratic red tape to be cut, and Kamil was an expert in going from conception to production in record time. Kamil is quoted as saying:

[B]ecause of the war, all of us were in a hurry, and this allowed us to cut red tape. For instance, we performed no feasibility studies in the normal sense. Because we are all fighters we know the end-use of our weapons . . . Sometimes a simple telephone call between a military user and myself can get the process going . . . while some of us work on building a prototype, others begin designing production tools, etc.

In 1988, SOTI was combined with the Ministry of Heavy Industry and the Military Production Authority to form the Ministry of Industrialization and Military Industrialization (MIMI) putting Kamil in charge of the entire Iraqi industrial apparatus.<sup>125</sup>

Kamil's restructuring of SOTI centered around two prongs, each intended to be half of the final blow planned against Iran. The first prong was the production of basic equipment such as tanks, ammunition, and spare parts, needed to replenish Iraq's depleted stocks of equipment and ammunition. The success of this prong depended on Iraqi industry and Iraqi skills, two areas where the effects of Saddam's investments in the rapid and total development of the relevant aspects of Iraq became clear. The Iraqi university system had been massively expanded and

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<sup>124</sup> Hoyt, pg. 130

<sup>125</sup> Hoyt, pg. 130-131

structured around industry, and as a result saw a 300 percent increase in enrollment in technical fields, equalling over 120,000 students by the end of the 1980s.<sup>126</sup> The emphasis on purchasing not just equipment but also technology and training resulted in the percentage of foreign specialists at SOTI/MIMI research and development centers dropping substantially, from around 250 out of 3000 at the beginning of the war to just 20 out of 3000 by war's end.<sup>127</sup>

In addition, Iraqi domestic tank assembly and modification programs had recently been implemented by 1986 and 1987, and large scale modification and upgrade of armored vehicles, particularly T-54/55 and their Chinese Type 59/69 equivalents was underway, adding night vision sights, additional armor panels, and concealment smoke launchers. Iraq was also undertaking some limited local assembly of T-55 models as well as local production and assembly of the Soviet-designed BMP-1 infantry fighting vehicle with Iraqi modifications in armor and gun. Both vehicles are staples of any armored assault.<sup>128</sup><sup>129</sup> The massive influx of weapons both from the Soviets and their own factories allowed the Iraqi army to double in size from twenty-six to fifty divisions from 1986 to 1988 and was accompanied by restructuring of command that massively helped tilt the balance of power against Iran.<sup>130</sup>

The second prong in Kamil's restructuring was the development of a long-range ballistic missile program intended to target cities deep within Iran such as Tehran and to destroy Iranian civilian morale. In December of 1986, the Soviet Union had shipped to Iraq as many as three hundred SCUD-B tactical ballistic missiles, which had a range of about three hundred kilometers, well short of the nine hundred kilometer distance to Tehran. To develop a method to

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<sup>126</sup> Hoyt, pg. 123

<sup>127</sup> Hoyt, pg. 135

<sup>128</sup> Hoyt, pg. 135

<sup>129</sup> Sayigh, *Arab Military Industry*, pg. 115

<sup>130</sup> Mesbahi, pg. 89

extend the range of these newly purchased missiles, Iraq signed a deal with Brazil, who was working with French aerospace companies to build missiles of their own. Iraq would ship several of the Soviet missiles to Brazil where they would be disassembled and reverse engineered by Iraqi, Brazilian, and French engineers. The team eventually concluded that by repurposing parts from some of the missiles, the range could be extended but at the cost of cutting by a third the size of Iraq's SCUD-B fleet. In effect, three hundred short range missiles could be turned into two hundred long-range missiles.<sup>131</sup> Saddam dubbed the new modified missile the al-Hussein, and tests showed it had double the range of the original SCUD-B produced by the Soviets.<sup>132</sup> Iraqi engineers were also able to further modify the SCUD-B to have a range of up to nine hundred kilometers and have even greater accuracy than the al-Hussein, called the Abbas missile.<sup>133</sup>

Saddam felt, however, that not even local equipment manufacture or the redesign of weapons built by other states was sufficient. He had grander ambitions in mind, something to not just win the war but to bring prestige to Iraq. This ambition intersected with those of another eccentric and ambitious man who had been floating around the international arms industry for two decades, a Canadian engineer and ballistics expert named Gerald Bull.

Bull was perhaps the quintessential eccentric genius, known for knocking down the walls of his advising professor's office in order to make room for a wind tunnel for testing and for clashing with Canadian government officials who refused to give him funding. He cut his teeth helping with the ultimately doomed Canadian Velvet Glove missile project in the 1950s, an attempt to establish an independent Canadian arms industry, and developed a fascination with the

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<sup>131</sup> Timmerman, pg. 247-248

<sup>132</sup> Timmerman, pg. 267

<sup>133</sup> Sayigh, 112

idea of launching a satellite into space using an artillery cannon.<sup>134</sup> The concept had shown some merit during testing with a modified U.S. Navy 400mm cannon in Barbados with funding from McGill University in Canada and the American military.<sup>135</sup> However, when the interest from the military waned and subsequently their money dried up, Bull was left to drift. As a means of financing his dream supergun project he casually designed a 155mm artillery cannon, the GC-45, and an accompanying 155mm shell to fire from the gun. Bull's new design put every other artillery system in the world to shame. It could accurately fire his shells up to thirty kilometers, a full ten kilometers more than standard 155mm guns used around the world.<sup>136</sup> Bull eventually sold the technology for the GC-45 to the Austrian company Voest-Alpine, which produced the gun under the name of GHN-45. The gun made a significant impact, particularly through its use by the armed forces of Apartheid South Africa against Cuban and Soviet-aligned MPLA Angolan forces during the Angolan Civil War.<sup>137</sup> The technology eventually made its way to a great many countries in some form. In fact, Voest-Alpine and the South Africans sold hundreds of GC-45s to both Iran and Iraq during the war.<sup>138</sup> The quality of the guns caught the attention of Hussein Kamil's SOTI, and in November of 1987 he called Gerald Bull's offices in Brussels, Belgium.<sup>139</sup>

In January of 1988, Bull and his sons, who acted as his business partners and associates, flew to Baghdad to meet Kamil. There, they discussed a partnership to develop an indigenous family of Iraqi artillery based around Bull's designs and to provide assistance in further

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<sup>134</sup> Lowther, *Arms and the Man*, pg. 54-56

<sup>135</sup> Lowther, pg. 73

<sup>136</sup> Lowther, pg. 103

<sup>137</sup> Lowther, pg. 147

<sup>138</sup> Lowther, pg. 170

<sup>139</sup> Lowther, pg. 173



developing Iraq's industrial and engineering capabilities. Most interesting to Bull, however, was Kamil's insistence on eventually putting Iraqi satellites in orbit. Bull jumped on the opportunity and brought up his supergun idea. Kamil, knowing of Saddam's visions for a uniquely Iraqi prestige project, was excited about the prospect.<sup>140</sup> The supergun project was eventually allotted twenty-five million dollars and dubbed Project 839 by Bull's Space Research Corporation (SRC), and Project Babylon by the Iraqis.<sup>141</sup> SRC would also provide training and education for Iraqi engineers.<sup>142</sup>

Thus in the two years following its humiliation at al-Fao, Iraq worked to further develop its military capabilities in preparation for a counteroffensive planned for the spring of 1988. As Bull had only become involved in January of 1988, it is unknown whether any of his contributions used by Iraq later, particularly those in artillery, were ready for deployment in the spring. But the purchases from the Soviets, the equipment produced within Iraq, the weapons modified by Iraq, and the greatly expanded and restructured military were ready for a renewed counterattack against Iranian forces on the al-Fao peninsula and elsewhere.

The counteroffensive began with the deployment of the modified SCUD-B missiles. For months in early 1988, from February 29 through May 1, three hundred missiles, mostly al-Hussein models, were launched at targets in Iran. One hundred and thirty-three hit Tehran, killing hundreds and causing a general panic in the city which caused thousands more to flee into the countryside.<sup>143</sup>

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<sup>140</sup> Lowther, pg. 170-180

<sup>141</sup> Lowther, pg. 185

<sup>142</sup> Lowther, pg. 190

<sup>143</sup> Mesbahi, pg. 37

The Iraqi assault on Iranian civilian targets was accompanied by weeks of false intelligence and radio signals with which the Iraqis deceived the Iranians into believing the attack would come elsewhere, much like the Iranians had done back in 1986. The ruse worked, and the Iranians moved the seasoned fighters out of al-Fao to where they expected the attack to come and replaced them with raw recruits. Then in a daring, swift night assault, General Rashid of the Iraqi army drove an entire armored division into the unprepared Iranian front lines. His assault was accompanied by a powerful air bombardment, including a new nine-ton bomb, designed and built in Iraq, which was so powerful its enormous blast caused some captured Iranian soldiers to believe the Iraqis had used nuclear weapons. The Iraqis accompanied their armor and air assault with a massive chemical artillery bombardment on Iranian positions. Within hours of the start of the assault, Iranian morale was crippled, and al-Fao's defenders routed.<sup>144</sup> General Hamdani recounts that Iraqi planners were surprised at the swiftness of their impending victory.

The reports started to come in, and we had not expected to liberate al-Fao this [quickly]. The Iranians were starting to drop and fall apart and were fleeing across the bridge back to their side. So Saddam asked . . . “What do you recommend? What is your opinion about how we can handle the situation? Is it better to strike the bridge now or later?” Then there was this suggestion to let them leave because of the psychological impact it would have. With low morale within the ranks of the Iranian forces, it would be hard for them to fight again.<sup>145</sup>

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<sup>144</sup> Timmerman, pg. 295

<sup>145</sup> Woods, pg. 87

The strategy worked. Within a few short months, Iranian forces had been routed completely and Iraqi troops quickly pushed all Iranian forces out of Iraq and even seized several thousand square kilometers of Iranian territory before Iranian supreme leader Ayatollah Ruhollah Khomeini reluctantly signed a ceasefire agreement in July of 1988. The war ended officially on August 20, 1988. Khuzestan remained in Iran, but Iraq had taken *de facto* control over the entirety of the Shatt al-Arab.<sup>146</sup> A bare minimum of half a million combined Iranians and Iraqis were dead.<sup>147</sup> Saddam was famous for his often callous nature, and while the war had killed hundreds of thousands of Iraqis, it had been a perhaps necessary catalyst for a never-before-seen extremely rapid expansion and development of Iraq's military industrial complex.

#### **Level Five:**

**Technological assimilation through use and production, in theory, leads to eventual use of acquired infrastructure for local research and development (R&D), weapons design, and completely indigenous production.<sup>148</sup>**

*Scarred but still battle ready, the T-55A tank #5210-005 no longer had a battle to fight now that Iraq was at peace. Still, the tank was useful. In late April of 1989, #5210-005 stood on display at the Baghdad Arms Exposition, where foreign arms experts marveled at the crude but effective modifications and repairs the Iraqi engineers had made and that had served #5210-005 so well.*

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<sup>146</sup> Tarock, *Superpowers' Involvement in Iran-Iraq War*, pg. 192

<sup>147</sup> Mesbahi, pg. 93

<sup>148</sup> Hoyt, pg. 9

*Two years later, Iraq invaded Kuwait and those modifications again stood #5210-005 in good stead. The 15th Mechanized Brigade was at the tip of Iraq's spear into Kuwait. For one shining moment, during a surprise Iraqi assault on Saudi lines at the Saudi-Kuwaiti border town of Ras al-Khafji, #5210-005 was utterly victorious. The enemies of Iraq ran away and died by the dozen, Americans and Saudis both. The Iraqi tanks seemed invincible. Even when a MILAN anti-tank missile fired by Saudi troops struck #5210-005's Iraqi-made laminate armor, it did no significant damage. Morozov would undoubtedly have been proud of the legacy of his design.*

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Neither the war with Iran nor the first crushing defeat at al-Fao ended Saddam's dream. Instead, they enabled it to come true by serving not only as an impetus but also as a testing ground. As a result, with the signing of the treaty and the return to uneasy peace, Saddam had an almost fully developed military industrial complex, an arsenal of Iraqi modified or designed weapons, and an operative plan for developing a domestically produced fleet of aircraft. He showed off his successes just a few months before it all began to unravel.

The military industrial complex now headed by Hussein Kamil was booming. It employed over a hundred thousand people and Iraq had perhaps the best educated workforce in the entire Arab world.<sup>149</sup> In spring 1989, just a few months after the end of the war, the first *Asad Babil* (Lion of Babylon) tanks rolled off the assembly line in Iraq. The *Asad Babil* was an Iraqi-built licensed copy of the Soviet-designed T-72M1 main battle tank, which Iraq had bought by the hundreds from the Soviet Union, Poland, and elsewhere and used to great effect. Many of their T-72s were modified with a Chinese electro-optical dazzler active protection system similar

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<sup>149</sup> Hoyt pg. 115, 123

to the Russian-made *Shtora* system, designed to disrupt the flight path of incoming laser-guided anti-tank missiles.<sup>150</sup> Iraqi factories were also producing the 125mm 2A46/D81 self-loading gun, the ammunition, the optics, the electronics, and additional minor parts while other parts were manufactured in the Soviet Union and sent to Iraq for final production and assembly. Iraqi MIMI officials declared that within a few years, the T-72 copy would have every part produced within Iraq.<sup>151</sup>

In addition to its successes with producing and redesigning tanks, Iraq was making substantial progress on its missile and artillery system programs. In November of 1988, Iraq unveiled its *Fao-1* anti-tactical ballistic missile, a missile designed, apparently locally, to shoot down ballistic missiles fired at Iraq. Iraqi engineers also worked on the *Waleed*, an offshoot of the Argentine Condor long-range ballistic missile program. With Gerald Bull's help, Iraqi factories produced prototypes of the *Majnoon* 155mm self-propelled howitzer, and began work on the 210mm *Fao* gun system capable of firing a two-hundred kilogram shell up to forty kilometers. Also being produced were the *Ababil*, *Sajeel*, and *Nasr* rocket artillery systems, a copy of the Soviet D-30 122mm howitzer, a locally designed 155mm howitzer dubbed the *Saddam*, and the locally designed *Saqr* infrared 500kg guided bomb. Then on December 7, 1989, Iraq test-launched the *Tammuz* rocket booster, capable of putting satellites in orbit or firing a guided missile up to three thousand kilometers.<sup>152</sup>

To improve its air supremacy, Iraqi technicians modified French-made Mirage F1 jets to fire Soviet-made AS-14 Kedge guided missiles. Soviet-made IL-76 transport jets were modified into airborne early warning radar aircraft with a combination of French and British electronics

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<sup>150</sup> Zaloga, *T-72 Main Battle Tank*, pg. 38

<sup>151</sup> Sayigh, pg. 114

<sup>152</sup> Sayigh, pg. 109-113, 116, 117

equipment and dubbed the *Baghdad-1*. The radar used in these aircraft, the French Thomson-CSF Tiger-G, was built under license in Iraq. Later versions of these aircraft were capable of not just early warning but also integrating with the radars of fighter jets and ground-based radar into a holistic system of command and control, a particularly impressive technical feat.<sup>153</sup>

These advances with other states' aircraft were useful but Saddam also coveted a domestically produced fleet of aircraft, and in June of 1989 began signing deals with European companies to work on what was dubbed the *Fao* project (as distinct from the *Fao* 210mm artillery piece). The project was a multi-phase decade-long project. The deal was worth over three billion dollars and would involve purchasing the rights and technologies to partially assemble sixty Mirage 2000s, France's most modern combat aircraft, as well as sixty Alphajet trainers. The deal also included a potential for an additional sixty aircraft of both types.<sup>154</sup>

Thus, Iraq was well on its way to full local production of almost everything they wanted. They were not only modifying the equipment of other countries but also designing their own, and plans for domestically produced aircraft were underway. Accordingly, Saddam wanted to share his success with the world.

Between April 28 and May 1 of 1989, Saddam hosted a massive arms exposition in Baghdad, which he called the First Baghdad International Exhibition for Military Production. Over a hundred companies from dozens of countries were in attendance.<sup>155</sup> The expo opened with an incident of violence that highlighted the biting irony of its slogan - "Defense equipment for peace and prosperity" - and that seemed befitting of the just-ended war and the greedy

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<sup>153</sup> Sayigh, pg. 116-120

<sup>154</sup> Sayigh, pg. 106

<sup>155</sup> CAAT, *Arming Saddam*

cynicism of the hundreds of foreign arms salesmen in attendance. An Alphajet aircraft to be displayed at the expo and flown by an Egyptian pilot attempted to land at the airport adjacent to the expo but miscalculated its flight path and strayed too close to the Presidential Palace.

Anti-aircraft guns manned by the Republican Guard immediately shot it down, and though the pilot and copilot survived, the damaged jet crashed into a civilian neighborhood, killing dozens.

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Some of the Iraqi weapons on display were just empty shells. For example, Gerald Bull's *Fao* 210mm self-propelled howitzer was there - or at least, a model of it was there that looked very much like a working vehicle.<sup>157</sup> Others were crude amalgamations of the designs of different countries. For example, a modification of the T-55 tank was on display, featuring a 2A46/D-81 125mm self-loading gun which had been taken from a T-72 and fitted into an enlarged and heavily altered version of the T-55 turret, which is designed to fit the much smaller 100mm D-10T gun. Though the ability of a tank designed for a 100mm gun to actually use a 125mm gun is doubtful, at least in the design the Iraqis had, the modified tank was still proudly displayed.<sup>158</sup> Still other weapons seemed poorly manufactured. A French engineer in attendance commented on the often roughshod production quality:

They don't lose any sleep over quality control, do they? And you know something? In the end, they're right. We spend a fortune trying to smooth out those rough edges. We make three-star bombs, polished as a mirror and as expensive as jewels. But in the end, they're

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<sup>156</sup> Timmerman, pg. 333

<sup>157</sup> Lowther, pg. 201

<sup>158</sup> Sayigh, pg. 115

all the same. They only get used once, and the guy who's on the receiving end of one of these is never going to complain because of a few manufacturing defects.<sup>159</sup>

Despite these negatives, the fact remained that while some of the Iraqi weapons may have been paper tigers, Saddam had built up an impressive collection of weapons and industry. French Chief of Staff Maurice Schmidt was in attendance and was surprised at the amount of French technology on display in the Iraqi weapons. “[I] began to wonder whether we hadn't gone a bit too far [with Iraq]. I realized we had better begin paying closer attention to what the Iraqis were developing.”<sup>160</sup> To have the world pay closer attention was exactly what Saddam wanted. With the expo it seemed that Iraq was well on its way to total success. The Iraqi statement to the UN in 1979 that they would be fully self-sufficient by 2000 no longer appeared far fetched.

While the mood among the Iraqi and European arms experts at the 1989 arms fair may have been jubilant, things soon began to go sour for Iraq. In March of 1990, Gerald Bull was shot to death outside his Brussels apartment, likely by Israeli agents afraid of his contributions to Iraq's ballistic missile program. Bull's death effectively put an end to Project Babylon and Space Research Corporation's substantial assistance to Iraq's artillery and engineering programs.<sup>161</sup> To make matters worse, regional political and economic conflicts and rivalries were starting to come to a head. The Iran-Iraq war had caused a severe economic and political strain on much of the Middle East. While certain countries like Egypt and some of the Gulf states helped Iraq to varying degrees, Syria had aligned itself with Iran, largely because of an old and bitter rivalry between the ruling Ba'ath parties of Syria and Iraq. In 1989, Iraqi and Syrian proxy forces

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<sup>159</sup> Timmerman, pg. 336-337

<sup>160</sup> Timmerman, 334

<sup>161</sup> Lowther, pg. 271



clashed in Lebanon.<sup>162</sup> At the same time, the Israel-Palestine peace process was not going well, and Iraq and Israel repeatedly exchanged threats though not gunfire. Then, in the two years following the war, Kuwait exceeded OPEC-mandated oil production which caused a sudden drop in oil prices and thus a severe drain on Iraqi revenue. Iraq viewed this action, perhaps rightly, as a direct threat to Iraq's post-war recovery and development.<sup>163</sup>

The loss of oil revenue was further complicated by Iraq's war debt, perhaps as much as eighty billion dollars. Before the war, Iraq had been able to pay for its new military expansions in cash due to its substantial oil revenue. When Iran attacked into Iraq starting in 1982, however, much of Iraq's oil production was interrupted or halted outright, causing a serious financial problem. As a result, much of Iraq's development during the 1980s had been done on credit. With the war over, those debts hung over Saddam like a dark cloud.<sup>164</sup> Kuwait had been one of the states that had loaned billions to Iraq, and once the war ended a combination of old border disputes, Kuwaiti refusal to submit to oil quotas, and Iraqi debt to Kuwait led Saddam to a dangerous thought: Invasion and occupation of Kuwait would solve all of these problems. A summit held in Baghdad in May of 1990 included Saddam, the Emir of Kuwait Sheikh Jaber al-Ahmad, and other Arab leaders in an attempt to reach a diplomatic solution to the increasing fear that Saddam would resort to war. With an almost fully developed military industrial machine and a vast army at his disposal, Saddam's incentives to negotiate were low. The summit, not surprisingly, was a failure.<sup>165</sup> On the morning of August 2, 1990, a fully equipped and well-supported Iraqi army invaded Kuwait.<sup>166</sup>

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<sup>162</sup> Sayigh, *The Gulf Crisis*, pg. 498

<sup>163</sup> Sayigh, pg. 502

<sup>164</sup> Khadduri, *War in the Gulf*, pg. 80

<sup>165</sup> Khadduri, pg. 87

<sup>166</sup> Khadduri, pg. 127

American President George H.W. Bush immediately began to assemble a coalition of allies, including several Arab states such as Saudi Arabia with the goal of getting Iraq to withdraw, through either diplomacy or military action.<sup>167</sup> Despite the strict economic sanctions imposed on Iraq following its invasion, diplomacy did not seem to be working. In November 1990, the United Nations Security Council passed Resolution 678 allowing the use of force to expel Iraqi military forces from Kuwait. Iraq was given one month to comply. In a desperate bid to gain Iranian support against the rapidly-assembling Coalition, Iraq relinquished its favorable position on the Shatt al-Arab river, gained at the end of the Iran-Iraq war.<sup>168</sup> Meanwhile, Coalition forces, primarily consisting of American, British, and Saudi troops assembled along the Saudi border with Iraq and Kuwait.<sup>169</sup> Iraq refused to withdraw, so on January 16th 1991 Coalition air forces began launching massive air and missile strikes on Iraqi military and industrial targets within both Iraq and Kuwait, focusing on destroying the Iraqi Air Force and bombing the supply lines to Iraqi forces in Kuwait. Hundreds of aircraft took part in the bombing.<sup>170</sup> As his military and industry were decimated by the massive Coalition bombardment, Saddam reached out to Soviet Premier Mikhail Gorbachev and UN officials to negotiate to end the war and withdraw from Kuwait on the condition that sanctions be lifted and American troops be withdrawn from Saudi Arabia. President Bush rejected the deal and on February 24 the Coalition land operation began. Iraqi troops, already greatly debilitated by weeks of air bombardment, fled immediately before the Coalition invasion. In one particularly grisly incident, thousands of fleeing Iraqi troops were massacred by American aircraft on Highway 80 in

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<sup>167</sup> Khadduri, pg. 131

<sup>168</sup> Tarock, pg. 205

<sup>169</sup> Khadduri, pg. 132

<sup>170</sup> Khadduri, pg. 170-171

Kuwait. The massacre was so wanton and unnecessary that Bush was pressured into ending the war on February 27, 1991, barely a month after Coalition forces had entered the conflict. Once more, tens of thousands more Iraqis were dead and all the gains Iraq had made during the Iran-Iraq war, from their massive military build up to gaining control over the Shatt al-Arab, were lost.<sup>171</sup>

The attempted invasion of Kuwait ended Saddam's dream of achieving total military independence by 2000. Not only had the bombing destroyed much equipment and many manufacturing locations but harsh embargoes had also been put in place that prevented all legal weapons sales to Iraq. But all was not lost. Though the Americans had predicted that they would wipe out Iraq's military industry as soon as the air campaign began, only an estimated thirty percent of Iraq's military industry was damaged or destroyed.<sup>172</sup> Much of the industrial equipment had been relocated before the bombing campaign began and was hampered only by a lack of spare parts due to the embargoes and sanctions placed upon Iraq after the end of the war with Kuwait. Moreover, though many of Iraq's most ambitious projects had been ended either directly by bombs or indirectly by sanctions, the basics of military necessity remained operational. Explosives factories, ammunition factories, and tank repair plants stayed functional. In fact, relying on the munitions that were still being produced by the remaining Iraqi military industry, Saddam's army was able to undertake complex and successful counterinsurgency campaigns that swiftly and brutally suppressed the Kurdish rebels in the north and Shia rebels in the south who rose up against Saddam in the internal chaos that followed Iraq's defeat in the 1991 war.<sup>173</sup> Reduced to relying on the shreds of his program, Saddam managed to maintain his

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<sup>171</sup> Khadduri, pg. 177-179

<sup>172</sup> Hoyt, pg. 141

<sup>173</sup> Hoyt, pg. 142-143

control of Iraq. For one brief shining moment before the 1991 war, however, he had stood poised on the cusp of the independence, global power, and prestige he had sought for more than twenty years.

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**CONCLUSION:** *As the war in Kuwait proceeded, however, the Iraqi troops were eventually defeated and routed. The 15th Mechanized Brigade and the crew of T-55A #5210-005 abandoned the long-serving tank, despite it being largely unharmed.<sup>174</sup>*

*Thus the story of #5210-005 came to an end as it sat in the Kuwaiti desert eventually to be recovered by US Army engineers, and sent back to the United States for evaluation, where it eventually ended up at the National Armor and Cavalry Museum at Fort Benning, Georgia, displayed as war booty. This was an ignominious end for a vehicle that had served with such distinction and with such history behind it.*

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Iraq under Saddam achieved an impressive level of military and industrial development. Saddam himself was a man of unique ambition, charisma, intelligence, callousness, and arrogance. While Saddam was a brutal and ruthless dictator, he was also extremely effective at achieving his ambitions and had an eye for talent. He assembled a team of Iraqi bureaucrats and foreign experts and turned Iraq into a genuinely powerful regional military actor. By 1991 Iraq was well on its way to meeting Saddam's lofty and ambitious goal to reach full self-sufficiency by 2000. Amir al-Sadi, Amir al-Ubeidi, Gerald Bull, Hussein Kamil and hundreds or thousands more worked, with Saddam at the head, to give Iraq the military independence Saddam believed

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<sup>174</sup> Zaloga, *T-54/55 Main Battle Tank*, pg. 36

his country required. The hundreds of foreign governments and corporations who helped build Saddam's war machine despite knowing full well what their contributions would be used for were all complicit in the unsavory actions Saddam took with the weapons and technologies they helped him build. Iraq's dual invasions of Iran and then Kuwait would not have been possible without these weapons.

An amorphous series of influences and trends throughout the Cold War resulted in a militarization of the developing world. This militarization led, particularly in Iraq, to a sort of security dilemma feedback loop, in which a variety of nations helped arm Saddam, thus contributing to the perception of Saddam as a threat and then turning around and having those very same nations go to war with Saddam. Most of the same countries that swiftly destroyed the Iraqi army in 1991 and 2003 were the same powers that happily gave him billions of dollars worth of advanced weapons and even more billions in loans knowing full well they would be used to chemically murder Iranian soldiers, bomb Iranian cities, and massacre Shia and Kurds within Iraq. When British military forces were deployed to fight against Saddam's army in Kuwait in 1990, many units were not issued desert camouflage, as just four years earlier the British government had sold those same uniforms to the Iraqi army.<sup>175</sup> American President Ronald Reagan established full diplomatic relations with Saddam in 1984, at the same time as Iraqi aircraft were gassing Iranian troops by the thousand on Majnoon Island. American policy towards Iraq during the 1990s was focused, however, on *preventing* Iraq from obtaining weapons of mass destruction (WMDs), which includes chemical weapons. Saddam Hussein, once America and the West's darling, was no longer politically expedient to support.

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<sup>175</sup> CAAT, *Arming Saddam*

In 2003, the United States and its allies invaded Iraq once again under the pretext of ending Iraq's WMD program. American forces deposed and executed Saddam Hussein, disbanded the Ba'ath party, destroyed what remained of Saddam's Army, and unleashed an as-yet unfinished series of asymmetrical conflicts that have resulted in hundreds of thousands, if not millions, of deaths. The only WMDs found in Iraq by occupying American forces were those remaining chemical weapons produced in factories built twenty years prior by Germans and paid for largely with loans from a myriad of nations, including the United States. In post-2003 Iraq, Saddam's legacy has been supplanted by other forces in the contemporary Iraqi political, military, and cultural zeitgeist.

Yet many of the same military and arms purchasing concerns that Saddam attempted to remedy during the peak of his reign have become newly relevant, with Russia, the United States, and Iran vying for control over the Iraqi arms market, lucrative once again as Iraq's military grows to face the dual threats of ISIS and unstable regional and internal politics. After the invasion, the US had a near-monopoly on the Iraqi arms market, selling the weapons that the US has been known for - M1 Abrams tanks, F-16 jets, M16 rifles, and more. These are weapons with a reputation for being expensive, finicky, and often deeply intertwined with punishing American stipulations on their repair and use that favor American arms manufacturers and contractors. The US has also withheld delivery of a large order of F-16 jets for several years despite Iraq already having paid for them in cash and sells Iraq the "monkey model" M1 Abrams, without the depleted uranium-hardened armor or advanced fire control systems.<sup>176</sup><sup>177</sup> Expensive-to-hire American contractors are required for repair, maintenance, and training. Recently, Russia has

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<sup>176</sup> Hejab, "Iraq takes delivery of F-16s."

<sup>177</sup> Binnie, "Iraqi Abrams Tank Losses Revealed."

gotten a foothold in the Iraqi market, selling T-90 main battle tanks, Russia's cheaper, smaller, easier to use answer to the M1 Abrams, rugged and effective Su-25 ground attack jets. Russia has even offered the highly advanced S-400 air defense missile system, much to the consternation of American military leaders, who fear losing control over their monopoly of Iraq and having Iraq gain the kind of independence such powerful non-American weapons would grant it.<sup>178179180</sup>

At this point, it must be asked why this matters. Why look at Iraq's weapons development program? The obvious answer is that something similar to the arming of Iraq can, has, and will happen again. As this is being written, bombs and missiles made by Raytheon and Lockheed Martin in the United States are being used by the Saudi Air Force to launch a horrific campaign of terror bombing in Yemen, famously making use of "triple-tap" airstrikes. Such strikes are named for the number of times they hit a target; when a target (in Yemen, those targets are often schools or crowded marketplaces) is hit by bombs, the emergency responders to that first strike are hit by a second round of bombs, and then the funeral for the previously killed is hit once again. Hundreds are killed in a single one of these strikes, and they occur weekly. Recent American administrations have sold hundreds of billions of dollars worth of weapons to Saudi Arabia, knowing full well how those weapons will be used in Yemen.<sup>181</sup> Saudi Arabia is, as Iraq was in the 1980s, one of the world's largest arms markets and the Saudi government, like that of Saddam Hussein, is at best, callous, unscrupulous, and has little regard for human life. The arms companies of the world, and the governments who facilitate those sales, have not

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<sup>178</sup> al-Kufawi, "Iraq's New Russian T90 Tanks Land in Iraq."

<sup>179</sup> Malyasov, "Russia has delivered a new batch of Sukhoi Su-25 jet aircraft to Iraq."

<sup>180</sup> "US threatens sanctions as Iraq eyes Russia's S-400 missile system," RT

<sup>181</sup> Norton, "U.S.-armed Saudi coalition bombed Yemen funeral, massacring 140, wounding 525 in 'lake of blood.'"

learned their lessons from the mustard gas horrors of Majnoon Island, the muddy no-man's-land of al-Fao, or the terror bombing of Tehran. Arms proliferation may result in temporary profit for those that take part, but the human costs are uncountable.

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