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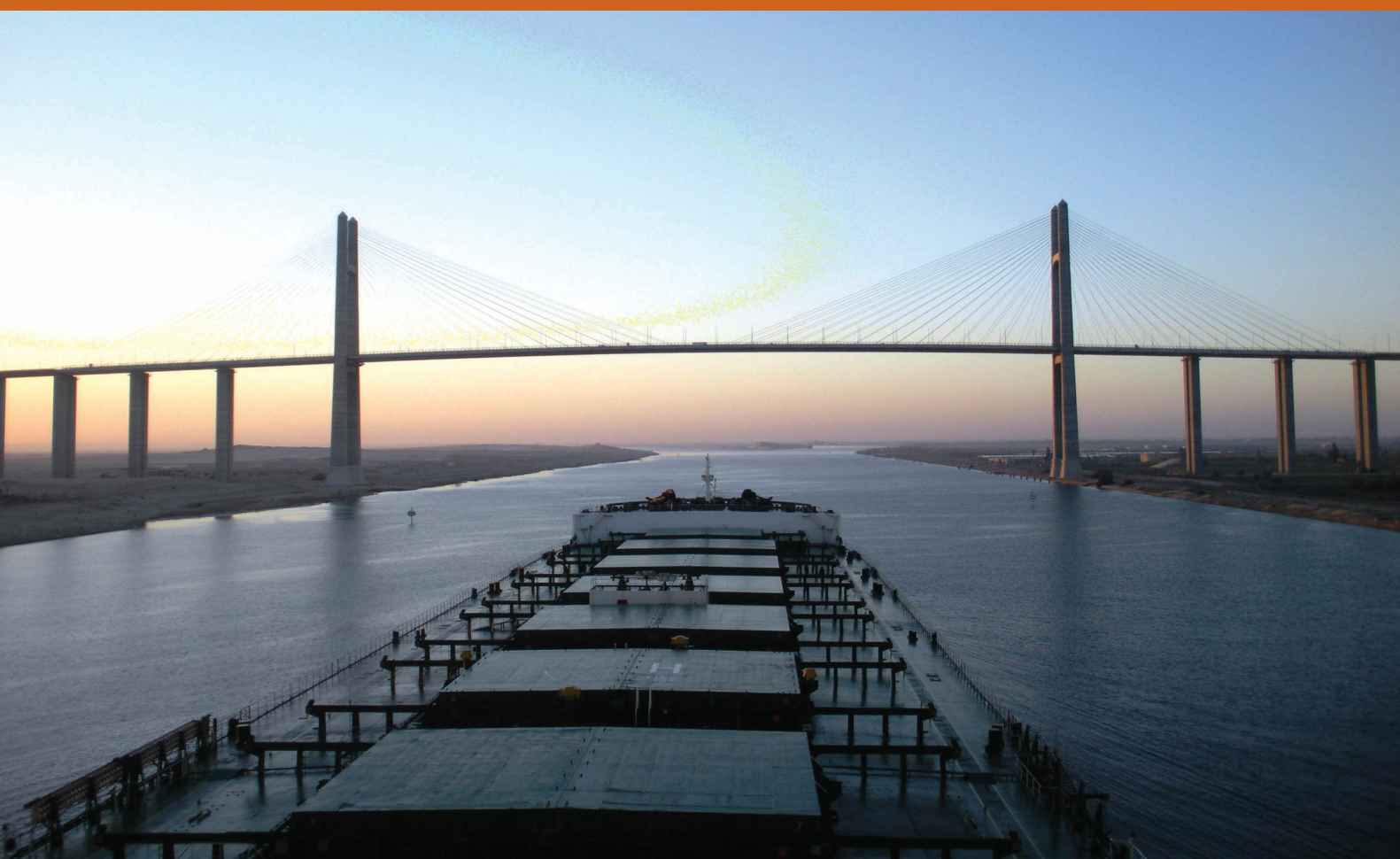
September Showdown: At NATO Summit & in Congress
The Coming Promethean Renaissance
Will the U.S. Join the Helium-3 Fusion Revolution?

Egypt Mobilizes To Build The New Suez Canal



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From the Editors

Prometheus versus Zeus—that is the fundamental characteristic of the world situation today, and the outcome of that battle in the short term will determine whether the planet undergoes another Dark Age of mass depopulation and death, or goes into a New Renaissance for all mankind. In modern terms, that conflict is represented by the commitment to a scientific world outlook, epitomized in the consolidation of the BRICS nations, versus the British imperial system which is driving the world toward war and collapse.

We feature one of the most stunning examples of the Promethean impulse on the planet, the Egyptian mobilization for a New Suez Canal (*Feature*). This particular project is only part of the shift underway—and we will continue the story in a followup article on the agricultural project planned to conquer the desert.

But Egypt is only a small part of the story. Our *Economics* lead on the BRICS motion over the past two weeks shows just how rapidly the new constellation for cooperation among nations is coming into being. And there will be much more to come, especially on China—where Helga Zepp-LaRouche is now on tour.

To master the Promethean outlook means a profound commitment to creativity per se, and this is the subject of the Aug. 29 LaRouchePAC New Paradigm show, which we also feature in this issue (*Science*). Jason Ross reviews the core scientific concepts. We follow it with our own interview with one of the world's leading researchers on helium-3, Dr. Gerald Kulcinski, who gives an exciting picture of what could be done, once we shift the United States out of its current captivity by the Empire.

This global conflict is not timeless, of course. We have entered a "showdown" period strategically, as Jeffrey Steinberg reviews, with the upcoming NATO Summit, and the Obama Administration's deadly commitment to British Empire strategy (*International*). That showdown also faces the nations of Western Europe; see our reports on recent developments in France and Germany. We also update one of the deadliest threats of all—the Ebola virus epidemic in Africa (*Economics*).

We're on the edge of the Promethean era, noted Lyndon LaRouche at last week's webcast, and "everything depends upon acquiring that edge." On Sept. 8, LaRouche will be 92 years of age, and is still leading the fight for that shift. If enough people join that fight, victory can be achieved.

Wouldn't it be poetic justice for the Congress to begin impeachment proceedings against Obama when it returns Sept. 8, LaRouche's birthday?

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Capesize bulk carrier at Suez Canal Bridge

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Egypt Mobilizes To Build The New Suez Canal

by Dean Andromidas and Hussein Askary, Part I

Aug. 29—Under the leadership of President Abdel Fattah al-Sisi, Egypt has joined the drive for a new world economic order launched by the BRICS countries at their July summit in Brazil. Great projects are underway for a New Suez Canal (which we discuss in Part I of this report), and the Toshka Project to irrigate half a million hectares of Egypt's western desert, and build new cities for millions of Egyptian citizens (Part II).

On Aug. 5, President al-Sisi presided over the ceremony commencing the construction of the New Suez Canal, as we reported in our Aug. 22 issue. By the next day, under the supervision of the Egyptian Army Corps of Engineers, 7,500 workers began digging. The goal is to double the throughput of the canal. Since it was nationalized by President Gamal Abdel Nasser in 1956, the cross-section of the canal has been enlarged by 400%, allowing it to accommodate the largest container ships and almost all of the largest bulk carrier and oil tanker classes. But today it has become a transportation bottleneck.

Egypt is the most populous nation in the Arab world, and it also lies on the path of the Maritime Silk Road

Suez Canal Authority, suezcanal.gov.eg

The Suez Canal Authority promotes its great project for a New Suez Canal.

and the Silk Road Economic Belt, which Chinese President Xi Jinping announced last October. The realization of these projects will open the way for development on a scale never seen on this planet. In allying with the efforts of the BRICS (Brazil, Russia, India, China, South Africa), Egypt can play a pivotal role in stopping the wars and sectarian conflicts that British-centered imperial forces have unleashed throughout Southwest Asia and Africa.

The potential for an African alliance for development is shown not only by recent developments in Egypt and South Africa. Ethiopia has resolved many of its internal political conflicts and is building huge dams for both hydroelectric power and irrigation, while negotiating with neighboring countries for shared use of the waters of the Nile. In the west is Nigeria, Africa's most populous state and a major oil producer, as well as oil- and mineral-rich Angola and the sleeping giant, Democratic Republic of Congo, whose water resources alone could save much of the continent from its current seemingly intractable water shortages.

Wars can only be stopped through the promise of economic development that can raise populations above the demoralization of civil and sectarian strife. This is the case in Egypt, whose internal conflict since 2011 has taken thousands of lives. In launching these mega-projects, President al-Sisi is refocusing the attention of Egypt's citizens, not on the demoralizing events and internal conflicts of the past, but on building a decent future for their children.

Two Mega-Projects

The New Suez Canal and Corridor Axis aims to double the throughput of the existing canal, which is arguably the world's most important maritime transit link. The Egyptian plan intends to transform the entire zone of 76,000 square kilometers, with industrial, logistical, and technological centers, as well as universities. The logistics and industrial center in the Suez Canal Corridor will serve as a bridge to Asia, while fostering zones of peace and economic development that will radiate to what are now zones of war and destruction, notably in Israel-Palestine, Syria, and Iraq.

The Toshka agricultural project is located in Egypt's Western Desert, which is the easternmost extremity of the Sahara Desert. The project will transfer water from Lake Nasser, which is formed by the High Aswan Dam on the Nile, in cooperation with all the nations along the Blue and White Nile, all the way down to the beautiful Lake Victoria (which borders on Kenya, Uganda, and Tanzania).

Al-Sisi official campaign

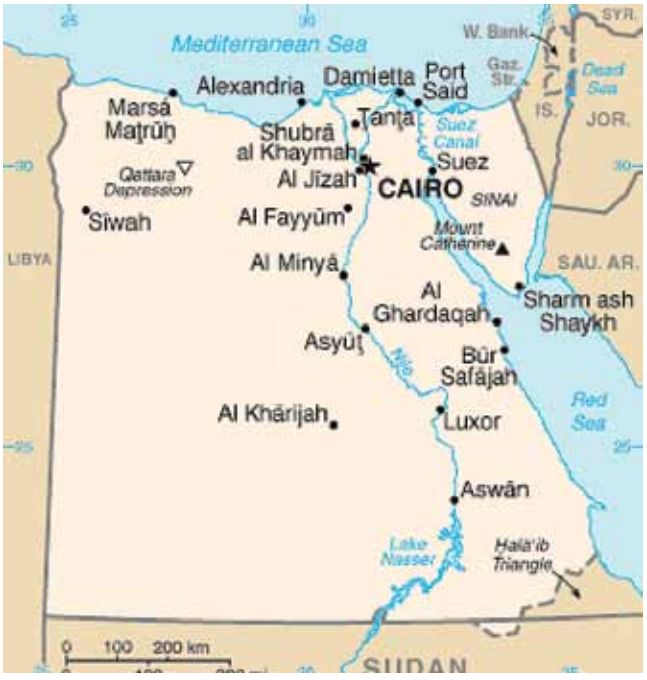
Egyptian President Abdel Fattah al-Sisi

The most important aspect of these projects is that they can serve as examples of how real economic development is not based on the "cargo cult" model of making the country attractive to foreign investment by low taxes and cheap labor for export-oriented industries that do not really contribute to the development of the nation. An infrastructure-driven policy not only develops the nation, but will also attract foreign investment for productive purposes, as opportunities beyond the so-called advantages of cheap labor reveal themselves, to the benefit of the country as well as the foreign investor.

By their very nature, these two projects are of continental character and impact. For Africa, Egypt (in collaboration with the BRICS) could become a key player in accomplishing the development projects that have either been halted by the criminal policies of the trans-Atlantic empire, or that never left the drawing board. Among these are the Jonglei Canal project, and extending a water-transport/power-development corridor from the Great Lakes Region and East Africa to the Mediterranean (as in the Africa Pass project of Aiman Rsheed[1] and Ethiopia's dam-building projects). Other projects can also involve an alliance between Egypt and the BRICS, such as the Transaqua Project[2] to refurbish Lake Chad; the Port Sudan-Dakar and Djibouti-Dakar railways, and the Alexandria-Capestad railway project.

1. See Hussein Askary, "Africa Pass: Afro-Mediterranean Revolutionary Project," *EIR*, June 8, 2012.
2. Portia Tarumbwa-Strid, "The Transaqua Project: Beginning of an African Rebirth," *EIR*, June 8, 2012.

FIGURE 1
Egypt



The development of the war-ravaged Darfur province in Sudan, as well as South Sudan, will become an integral part of these projects.

The great projects now being built in Egypt form a beautiful complement to *EIR*'s 2012 "Program for an Economic Miracle in Southern Europe, the Mediterranean Region, and Africa," which identified the infrastructure projects necessary to fully integrate the region, on both sides of the Mediterranean, into the Eurasian Land-Bridge.

New Suez Canal, Phase I

The New Suez Canal Corridor Development Project will bridge Africa and Eurasia in a threefold manner. The first is its maritime function, linking the seas and oceans of Asia with the Mediterranean and the Atlantic; the second is the land corridor for railways and roads; and the third is an industrial and development hub radiating development to the north and east into Palestine, most immediately the Gaza Strip, Israel, Jordan, Lebanon, Syria, and Iraq, and across Africa.

The Suez Canal is currently a chokepoint for transport between Asia and Europe. Ten percent of the world's trade, or 18,000 ships per year, pass through this 163 km waterway, which, on average, is only 60 meters wide, at the average rate of 49 ships a day. The fact that the canal allows for only one-way passage forces ships to travel in convoys. Doubling the size of the canal will not only eliminate the need for these one-way convoys, which can cause 30-40 hours of delays; it will also double the number of ships able to pass in one day and will reduce passage through the canal from the current 18 hours to 11.

The first phase of the "New Suez Canal" project entails digging a new 35-km canal parallel to the old canal, from the Mediterranean south to the Bitter Lakes, and then doubling the size of the 37 kilometers of the old canal that lie south of these lakes. This requires the removal of more than 300 million cubic meters of sand. As of this writing, over 20 million has already been removed, through the work of close to 15,000 workers and 52 companies.

This phase of the project will cost an estimated $4 billion. The government will not allow it to be financed with foreign loans or public shares on the stock market. Egyptians well remember that it was through taking out foreign loans to build the canal in the 18th Century, that the British Empire was able to turn the country into its colony.

Financing will be totally internal and will follow the example of Alexander Hamilton's sale of subscriptions to the Revolutionary War debt of the United States. The Egyptian government will sell debt certificates to Egyptian citizens denominated in 10, 100, and 1,000 Egyptian pounds, bearing 12% interest. Egyptians living abroad can buy certificates in dollars bearing 3.5% interest.

Thus the project will be built and financed by the Egyptian people as a whole.

Many Western shipping specialists have questioned the wisdom of such an expensive project at a time when world trade is stagnating. But Egypt is placing its bets on the BRICS' planned expansion of trade and economic cooperation, rather than the current system of dumping cheap commodities and raw materials on the collapsing European and North American economies.

For example, China and Asia require an expansion of food imports, especially grains and meat. The Chinese are seeking such imports from Eastern European countries that historically have been breadbaskets of the world, but since the collapse of the Soviet Union, they have had tremendous underutilization of their potential. Those exports will come through the Black Sea and Eastern Mediterranean ports and through the Suez Canal. Grains are carried in Suezmax bulk carriers.

This defines the importance of Suez as a global transport hub linking the Maritime Silk Road, on the one side, and the land routes on the other. They will not compete, but rather complement one another, in multimodal or combined transport systems that facilitate rapid and efficient world trade.

Today's long-distance shipping is dominated by super-ships, including tankers, bulk carriers, and container ships that displace up to 150,000 dead weight tons or more, considerably larger than the mightiest U.S. aircraft carriers. The largest of these container ships, the Triple E class operated by the Danish shipping giant Moller Maersk, with a displacement of 165,000 dead weight tons, can carry 18,000 20-foot equivalent units (TEUs), with cargoes valued at an average of half a billion dollars. If these containers were put on a railway, the train would stretch over 100 kilometers. These ships are so large that few ports can accommodate them, and they cannot pass through the Panama Canal or the Turkish Straits (the Dardanelles, Sea of Marmara, and the Bosphorus).

The canal zone's facilities are to be greatly upgraded, including several ports in the region. On the east side, Port Said, at the Mediterranean entrance to the canal, there is the Suez Canal Container Terminal, a modern terminal used almost exclusively for transship-

Will Egypt Revive Nasser's Spirit vs. the Empire?

Aug. 28—Supporters of the New Suez Canal know the difference between the national tradition of Egyptian President Gamal Abdel Nasser (ruled 1956-70), who nationalized the Suez Canal in 1956, and the British Empire's use of debt to enslave the country.

Ahmed Sayed al-Nagar, Chief Economist for the Al-Ahram Center for Political and Strategic Studies, wrote in today's issue of the pro-government daily *Al-Ahram*, why it is so important to fund the canal with debt certificates that can only be bought by Egyptian citizens, rather than foreigners.

"The overall cost of the project is LE67 billion [Egyptian pounds] and the mechanism for funding will decide whether the project will revive the spirit of 1956, when the late leader Gamal Abdel Nasser nationalized the Suez Canal and took it back from the claws of global capitalism that had usurped it through conspiracy, fraud and aggression. Or, whether the overall sentiment will be similar to when the canal was being dug by foreign funds that landed Egypt in the trap of foreign debt, that concluded with criminal British colonial occupation of Egypt. Therefore, it is important from the start to ensure that funding for constructing the canal is 100% Egyptian, while Arab and foreign capital would later finance industrial and service projects. The old canal and the new project must remain entirely Egyptian.

"The president [Abdel Fattah al-Sisi] has reiterated the Egyptian identity of the canal and reliance on public shares as a main mechanism for funding, and on national banks and government funding. This spotlights the great difference between the new project that holds great hope for Egypt, and the project of the removed President that would have catastrophically resulted in truncating the Suez Canal region from Egypt for the benefit of global capitalism and sacks of money from Qatar and the International Organization of the Muslim Brotherhood."

The "project of the removed President" refers to a law proposed by the ousted Muslim Brotherhood-led government of Mohammed Morsi, which, on the pretext of attracting foreign investment, would have put the region under a legal regime outside the Egyptian Constitution, and would have given Morsi, as President, power to do almost anything in the zone; it would have endangered the security of Egypt.

Al-Nagar also wrote that *Al-Ahram* would, free of charge, promote the sale of debt certificates to the public "to build this giant national project that is a main gateway for Egypt's economic boom to summon all the savings capacity of the great people of Egypt, at home and abroad, to build the future, destiny and path for their country with the money, brains and achievements of its people. This is how great nations build their glory."

—Dean Andromidas

Suez Canal Authority, suezcanal.gov.eg

The Suez Canal at the end of Temseh Lake.

ments. Opened in 2004, it has doubled in size since then, and is now the largest container terminal on the Mediterranean. In addition to expanding the capacity of the container terminal, other types of terminals will be expanded, including the liquid cargo terminal, dry bulk terminal, agricultural shipments terminal, roll-on-roll-off ships terminal, and bunker terminal.

The new super-ships often unload 2,000 or more containers for transshipment to smaller ships and coasters that will call at ports in the Eastern Mediterranean. One of those smaller ports will be in Gaza, which must open as part of a lasting peace with Israel, and will link the new state of Palestine to the Maritime Silk Road. Other ports of call for these smaller ships would be Israel's two major ports, Ashdod and Haifa, Lebanon's Beirut, Syria's Lattakia, Mersin on Turkey's Mediterranean coast, Izmir on the Aegean, and points on the Black Sea such as Odessa in Ukraine, and the Russian Black Sea ports where Russia plans to build a logistics center to import agricultural products from Egypt and other non-EU nations, in view of the present EU sanctions against it. These smaller ships will also pick up containers headed for Europe's Atlantic ports.

At the southern terminus of the canal is Port Suez, and, 17 km to the south, on the western coast of the Suez Gulf, is the port of Adabiya. Both are among Egypt's important industrial centers.

Fifty kilometers south of Suez is Sukhna, which is still under development. This is the first comprehensively planned port and is one of the so-called "third generation ports," equipped with the most up-to-date technologies to serve export and import operations for general cargo, bulk, and container handling.

The city of Ain Sukhna is home to Egypt's Special Economic Zone, a joint project with China's Tianjin Investment Holdings. Opened in 2006, it is modeled after the SEZs in China, which host export-oriented industries. China plans to build five such zones in Africa, where Chinese companies could establish factories. Ain Sukhna is the first.

Railway links between these ports in the south and those in the north will be built in order to allow ships to unload their cargoes for transshipment to points north without going through the canal. In addition, tank farms (depots) for liquid cargoes, grain storage facilities, and bunkering facilities will have to be expanded. Shipyard and drydock capacities will have to be expanded to accommodate the super-ships.

Phase II: Inter-Continental Railway Hub

Egypt is planning six new tunnels under the enlarged canal, facilitating the rapid development of the vast, underdeveloped Sinai Peninsula east of the canal. At least two of these will be railway tunnels, linking Eurasia and Africa. Virtually all the nations on both sides of the Eurasia-Africa divide have launched railway projects in the last ten years, with Chinese, Russian, and European participation, but most have not been completed because of ongoing wars and conflicts in Southwest Asia and Africa.

Creative Commons/Maersk Line

A huge Triple-E freighter passes Port Said in the Suez Canal.

The Trans-Mashreq High-Speed Railway is being built to the east of the canal and the Trans-Maghreb High-Speed Railway from the west.

Egypt has plans to extend its railway right up to the Gaza Strip, where a rail link could follow the coast through Gaza City to the north—assuming a peace agreement between Israel and Palestine—linking it to Israel's coastal cities, including Ashdod, Tel Aviv, and Haifa, Israel's largest port. Continuing north, the line would reach Beirut and other coastal cities in Lebanon, continuing to the major cities along the Syrian coast, now a war zone, and then into Turkey, where sections of that country's high-speed-rail network are already functioning.

Another line would go east toward the twin Red Sea ports, Eilat in Israel and Aqaba in Jordan; the latter is planning a north-south rail line that would link to the Syrian network in the north and Iraq in the northeast. This would enhance Jordan's role as a key transshipment country, transforming Aqaba into a port of entry for shipments to and from Asia and the west coast of Africa, to all of Southwest Asia and beyond.

On April 2014, Jordanian Prime Minister Abdullah Ensour met with a delegation of the Foreign Affairs Committee of the Chinese People's Political Consultative Conference, and invited China to cooperate in this railway project, which he said would integrate Jordan into the New Silk Road.

Egypt's new tunnels will join up with railway lines along the North African coast. Egypt has the oldest railway system in all of Africa and the Middle East, with a relatively dense network in Cairo and the Delta region, and with rail lines along the full length of the Nile in Egypt and along the northern coast to the Libyan border. In March, the Egyptian Ministry of Transport announced that it has made a priority of the construction of a high-speed north-south railway along the Nile Valley that would link Alexandria with Aswan on the Sudanese border, connecting all five of Egypt's major provinces.

This line could continue south through Sudan and into Ethiopia, Uganda, and Kenya.

Like the New Suez Canal project, it would involve Egypt's Army Corps of Engineers, and would be financed internally through the selling of shares, debt certificates, as well as loans from Egyptian banks and investment by Egyptian business interests.

There is already a link from Ismailia, on the Suez Canal, where a new tunnel is planned, to the Libyan border on the Mediterranean coast. The *EIR*/Schiller Institute Mediterranean Plan envisions that line continuing as a high-speed line west along the coast through Libya, Tunisia, Algeria, and Morocco, with tunnels linking Tunisia to Italy and Morocco to Spain.

The overthrow and murder of Libyan President Muammar Qaddafi in 2011 put an end to the railway project that Russia and China were building in that country, at the cost of over a billion dollars. This would

have been the country's first railroad, and would eventually link with Egypt on the east and Tunisia on the west. Although Russia and Chinese railway engineers have left the country, the beleaguered Libyan government, now being supported by Egypt, has said it wants to restart the project as soon as possible.

In Tunisia, high-speed rail is on the agenda. In February 2012, the Tunisian Transport Ministry hosted a conference of representatives of the national railways of Libya, Tunisia, Algeria, Morocco, and Mauritania to discuss the Trans-Maghreb high-speed line. Each of these nations is extremely serious about this project. Tunisia plans to spend $5.5 billion over the next decade to develop it, and Algeria, which has a developed rail network, has similar plans.

Morocco is halfway through completing its new high-speed line between Casablanca on the Atlantic and Tangier on the Mediterranean, using French TGV technology. Moreover, Morocco and Spain have completed feasibility studies and have conducted extensive research for building a railway tunnel under the Strait of Gibraltar. If and when completed, it would be the most important transcontinental infrastructure project since the Suez Canal.

The *EIR*/Schiller Institute plan supported a proposal by Egyptian engineer Aiman Rsheed to construct a port at the Egyptian city of Sidi Barrani on the Mediterranean, near the Libyan border, which would serve as a terminus for a rail line that would run south through Sudan, where it would branch, with one line continuing all the way to the land-locked countries of Rwanda, Burundi, and Uganda. The other line would run through land-locked Ethiopia and northern Kenya, terminating at Kismayu on the coast of Somalia. These rail lines would open up almost a third of Africa for rapid development.

Phase III and Beyond: On the Road to the Fusion Economy

All of these ambitious projects, however, do not solve the most fundamental challenge that Egypt, Africa, and Southwest Asia are facing: increasing the production of electricity, not only for industrial development, but also for the desalination of water. Egypt is now experiencing sporadic blackouts because of the acute shortage of electricity. The necessary increase of power can only come from nuclear fission, and ultimately fusion power.

All the countries of North Africa suffer from inadequate water supplies. The northern coast of Africa is dotted with populous cities, yet there is not one nuclear power station that could provide inexpensive, desalinated seawater. The huge city of Alexandria does not even have a conventional desalination plant.

This brings us to Phase III of the Suez Canal Development Corridor, turning the canal zone and the greater Sinai region into a world-class center of industry, and technological and scientific research and development.

Almost all the Arab nations, from the Persian Gulf to the Atlantic coast, have plans for the construction of nuclear power stations. The United Arab Emirates has started construction of the first of four nuclear power stations, with a total capacity of 5,600 megawatts. Saudi Arabia is in advanced planning stages, and Jordan has signed an agreement with Russia's Rosatom to build the country's first two 1,000 MW nuclear reactors.

Upon taking office, President al-Sisi identified building Egypt's first nuclear power station as among his government's top priorities, and during his summit with Russian President Vladimir Putin on Aug. 12, the leaders discussed cooperation on nuclear energy.

An official tender for the nuclear reactor should be released by the end of this year. The reactor site will be at al-Dabaa on the Mediterranean coast, which has been reserved for a reactor since the 1980s. The government has ordered the Army Corps of Engineers to refurbish the facilities that already exist there—administrative buildings, laboratories, storage units, workshops, and water and electrical utilities.

Egypt has a relatively well-developed nuclear research capacity. The Atomic Energy Authority oversees the country's two research reactors, including a 2 MW multipurpose nuclear reactor (MPR) launched in 1961 and a 22 MW MPR built by the Argentine company Investigación Aplicada and activated in 1998. There is also a fuel-manufacturing pilot plant to supply these MTRs, and a hot laboratory and waste management center. Close to a thousand scientists, researchers, and engineers work in these facilities.

In 2011, a joint venture was established between the Egyptian company Orascom Construction Industries and the state-owned Arab Contractors, for the purpose of bidding on nuclear power projects in Egypt and the Middle East.

The Sinai Peninsula is virtually undeveloped, but is rich in natural resources that could feed great industrial enterprises such as glass manufacturing. The region

also boasts large deposits of salt, potassium, limestone, granite, and dolomite.

All of this requires electricity, and plenty of it. The nuclear power station at Dabaa, once built, will not add enough power to drive the economic miracle Egypt is preparing for. Egypt will need several nuclear power plants on the north coast alone, to supply such large population centers as Alexandria with electricity and fresh-water, to relieve the pressure on the limited resources of the Nile.

A "Technology Valley" is planned at Ismailia, near geographic the center of the Suez Canal route, and will be home to one of the campuses of the Suez Canal University.

So why not create a "nuplex" alongside the Technology Valley, by building a large nuclear power station in the center of the canal zone, perhaps on the Great Bitter Lake, which would supply cheap electricity for desalination of water and powering the new industries in the entire region?

The idea of a nuclear-centered agro-industrial complex ("nuplex") originated with President Dwight Eisenhower's 1953 Atoms for Peace program. It called for construction of a nuplex in the Sinai-Negev area of the southeastern Mediterranean coast, to be jointly owned and managed by Israel and Egypt.[3]

Eisenhower proposed anchoring a comprehensive Middle East peace process by building a series of nuclear power stations, including on the north coast of the Sinai, for electricity and desalination of water. These proposals were suppressed as a matter of policy, because of anti-nuclear policies in the United States.

Plentiful and inexpensive power, not "cheap labor," will be the driver for investment in industry in the region. Cheap labor has never driven real industrial development; but access to energy does, along with a qualified and motivated labor force. Within this nuplex could be created great educational and research centers dedicated to nuclear science and engineering, including research into fusion energy, which can draw scientists from throughout the region.

There are many potential partners for such a project, including Russia, China, and South Korea, all of which have their own nuclear technology, as well as ambitious fusion research programs.

To be continued.

3. See, for example, *EIR*, Dec. 8, 1981.

BRICS in Motion To Form the New 'International Community'

by Michael Billington

Sept. 1—The U.S. and most European governments, and their obedient press outlets, have focused over recent weeks on President Obama's assertions of kingly power to wage war in Iraq, Syria, Ukraine, and wherever else he pleases, and on the dangerous NATO rants about a Russian "invasion" of Ukraine, combined with threats that the "international community" will respond with yet more self-destructive sanctions, and a massive military buildup around the borders of Russia and China.

But who or what is the "international community"? For many years, the British Empire and its underlings (including Presidents Bush and Obama) have waged illegal wars, imposed unilateral and collective sanctions outside of international law, and supplied massive armaments to terrorist forces across Southwest Asia (often through their satrapies in Saudi Arabia and Qatar), all in the name of the "international community"—meaning the Anglo-American financial oligarchy and its "Washington consensus" of free trade, deregulation, and IMF-dictated austerity.

Now, especially since the BRICS Summit in Brazil in mid-July, there is a new "international community" which, this time, actually represents most of the world's nations and the majority of the world's population.

Lyndon LaRouche this week referred to the "old" international community as "a bunch of hysterics who are totally bankrupt, and they are not going to get anywhere. They might as well just sit down and contemplate whether they're going to shoot themselves."

This report will briefly review what the new "international community"—the BRICS (Russia, China, India, Brazil, and South Africa) and their close collaborators (nearly all of Ibero-America, and much of Africa and Asia) have done *in the past few weeks alone* to transform the world from one of economic and social disintegration to one of large-scale infrastructure development, industrial and agricultural expansion, and multilateral collaboration in space, nuclear technology, and related scientific endeavors.

The creation by the BRICS of a New Development Bank (NDB) to fund infrastructure development worldwide, without the imperial "conditionalities" of the IMF and World Bank, and a Contingent Reserve Arrangement (CRA), to combat currency warfare from the speculators in New York and London, will not become operative institutions for several years. Nonetheless, the simple *announcement of intention* to create such a new global economic order has dramatically changed the condition of the world, and unchained nations to act upon their true freedom as sovereign nations, in collaboration with other sovereigns, in the interest of their populations, and of all mankind, through scientific and economic development.

Expanding Real Value

Russia is currently being decried as an existential threat to Western civilization, due to its imagined "aggression" against Ukraine, and potentially all of Europe. President Obama repeatedly talks about Russia's and

Presidential Press & Information Service

President Putin (second from left) and Chinese Vice Premier Zhang Gaoli (right) in Yakutsk, Russia Sept. 1, mark the opening of the first section of the Power of Siberia mainline gas pipeline. Alexei Miller, chairman of Gazprom's Management Committee is on the left.

President Vladimir Putin's "increasing isolation from the international community" due to Putin's refusal to back down in the face of the threats and sanctions of the British- and American-dominated NATO, while also refusing to be drawn into a war which would be thermonuclear.

Let's examine the reality.

• Is Russia isolated?

First, President Putin met with 12 Ibero-American heads of state on the sidelines of the BRICS Summit in July. Foreign Minister Sergei Lavrov told *RT* on Aug. 29 that "Latin America will be one of the pillars of the New World Economic Order" under the BRICS initiative. Thus, America's "backyard" has rejected altogether Obama's demand that Russia be ostracized by the "international community." Lavrov particularly pointed to Russia's close collaboration with Brazil, Argentina, Cuba, Chile, Peru, and Venezuela, while noting Russia's "broad program" of cooperation in energy, transportation, defense, aerospace, and heavy industry—areas of great importance in Ibero-America which have been almost entirely ignored by the West.

Particularly important is the role of Argentina, which has heroically stood up to the Wall Street vulture funds, the corrupt U.S. courts, and the old, dying "international community" which demanded its pound of flesh from Argentina. All the BRICS nations, every Ibero-American nation, and most of Asia and Africa have defended Argentina's sovereign right to renegotiate its debts, while Argentina has sent a trade delegation to Russia; Argentina announced on Aug. 21 a series of accords with Russia that pave the way for food exports to that country amounting to as much as $18 billion, to replace the food that Russia refuses to import from Western nations that have imposed sanctions on Russia.

• Africa: South Africa's President Jacob Zuma met with President Putin in Moscow on Aug. 29—their third meeting over the past year. Putin promised to provide Russia's assistance in creating a comprehensive nuclear energy industry in South America, as well as assistance in military and commercial aircraft, and security cooperation.

While the extraordinary role of Egypt in the current global transformation is covered in-depth elsewhere in this issue (see p. 4), several things should be referenced for the purposes of this article: that Egyptian President Abdel Fattah al-Sisi's first trip abroad as President included a stop in Moscow; that he issued a letter of support to Argentine President Cristina Fernández de Kirchner against the vulture funds; that he will visit Brazil in October; and that he has outlined a series of great projects in Egypt, not seen since the days of President Gamal Abdel Nasser, including a New Suez Canal to be built and funded entirely by Egyptians.

President al-Sisi is also intervening to help clean up the messes created by the London and the Washington in Palestine, Libya, Syria, and Iraq. While not a member of the BRICS (at least not yet), al-Sisi is acting consciously in the context of the new global environment established since the July BRICS Summit.

• Southeast Asia: Russian Economic Development Minister Alexi Ulyukayev visited Myanmar, currently the chairmen of the ten-nation Association of Southeast

Asian Nations (ASEAN) on Aug. 28, for ministerial talks between Russia and ASEAN. They discussed both food exports to Russia from the highly productive ASEAN agriculture sector, and expanded Russian investment in the region.

• China and Central Asia: Following private meetings between Presidents Putin and Xi Jinping in April and July, Russian Chief of Staff Valery Gerasimov was in Beijing Aug. 28 for discussions with his counterpart, Fang Fenghui. Gerasimov said that Russia-China relations, including military ties, had reached a "new stage." Gerasimov also attended a meeting of the chiefs of staff of the Shanghai Cooperation Organization (SCO—China, Kazakstan, Kyrgyzstan, Russia, Tajikistan, and Uzbekistan), where the pressing issues of Afghanistan and Iraq were addressed. Gerasimov noted that "forceful actions do not bring the results, and lead to dramatic consequences for the countries in the region."

On Sept. 1, Putin and Chinese Vice Premier Zhang Gaoli launched the construction of the mammoth gas pipeline contracted between Presidents Putin and Xi in May. The $400 billion energy deal includes the construction of the longest pipeline in the world, nearly 4,000 km, from the eastern Siberian gas fields to China and the Pacific coast of Russia.

China in the Lead

China is the driving force behind the new science- and development-oriented paradigm being created in the world today. During the last week in August alone, China sponsored the SCO foreign ministers meeting mentioned above, while an Argentine delegation, including Foreign Minister Axel Kicillof, is in China to consolidate the agreements reached between Presidents Putin and Fernández during the BRICS Summit in Brazil, and to prepare for the Argentine President to visit China later this year. This is in contrast to the insanity of the New York vulture funds, which last week issued subpoenas to the Bank of China in New York, demanding all their data on economic contracts with Argentina—attempting to locate properties that can be deemed to be owned by the Argentine government, intending to seize them under orders of the U.S. court.

China is moving forward on its intention to build a second canal across the Panama Isthmus, this time in Nicaragua. A national mobilization is underway in Nicaragua to rally the population behind the project, as in Egypt for the New Suez Canal. The Chinese company heading the $40 billion project, HKND, is partnered with Changjiang Institute of Survey, Planning Design and Research, the firm that designed the Three Gorges Dam, and is part of the great South-Water-North project in China. China has also agreed to build a multi-purpose terminal at Cuba's Santiago de Cuba port, as well as several "dry canals" (road and rail crossings of the Isthmus).

While Mexico has thus far remained at arm's length from the global revolution set into motion by the BRICS Summit, the Chinese Ambassador to Mexico, Qiu Xiaoqi, published an op-ed in Mexico's *El Financiero* on Aug. 27, using as a title an ancient Chinese saying: "Better the Prosperity of Many Than of One Alone." Ambassador Qiu said that the new policy emerging from the BRICS Summit "marks a momentous milestone in cooperation between developing countries, improving even more the international financial system, and promoting healthy and sustainable global economic growth." He said that the new institutions will aid the "progress of the developing nations," as well as the "recovery and growth of developed nations."

China is encouraging all nations to join in the new development-vectored process. Iran has expressed interest in joining the BRICS, and Qiu concluded, "I hope that all the countries of the world adhere to the concept of cooperation based on shared benefits."

In Thailand, despite years of paralysis created by anti-development mobs protesting every major development plan, the military junta which seized power in May has worked closely with China (and South Korea and Japan) to activate major water projects, agricultural modernization, and high-speed rail projects—including the crucial connection from Kunming, China, through Laos, Thailand and Malaysia to Singapore—the "Orient Express."

Crucial negotiations are now taking place among business and government groups from Thailand, China, Japan, and other nations to activate plans to build the Kra Canal across the Isthmus of Kra in southern Thailand, bypassing the overcrowded shipping lanes of the Malacca Strait. Together with the second Panama Canal and the New Suez Canal, this would complete the great canal projects promoted by Lyndon LaRouche in his *A Fifty-Year Development Policy for the Indian-Pacific Ocean Basins,* published in 1983.

India Transformed

Since taking power in May, President Narendra Modi has shifted the direction of India's economy and

foreign policy, focused on his campaign slogan: "Development, development, development." Coherent with India's role in the BRICS, his foreign policy is oriented to the rapid expansion of international cooperation in industry, agriculture, and scientific advances in nuclear power and space exploration.

Modi is also intent on facilitating a solution to the festering crisis between Japan and China, which he sees as undermining the urgent development of Eurasia as a whole. One of his first foreign visits was to Japan, where he signed agreements on Sept. 1 including Japanese investments in India of $35 billion over the next five years, especially in high-speed rail lines and new transportation corridors between India and its neighbors, Nepal, Bangladesh, and Myanmar.

Modi has also invited Chinese President Xi to visit India in September, and intends to demonstrate that India can, and must, strengthen ties with all nations, but based on real economic development. As Modi said in Tokyo: "Those who walk the path of the Buddha believe in the path of developmentalism that guarantees peace and progress. But all around us, the world is looking like the 18th Century, and we see expansionism—sometimes encroach on a country, sometimes enter into the seas, sometimes enter a country to take it over. We can see these tendencies."

Efforts in Japan and the West to portray this statement as anti-China, due to China's supposed encroachments on contested territories in the the South China and East China seas, fall flat, by ignoring Modi's crucial role in the BRICS establishment of a new world order based on "developmentalism," contrasted to the U.S./British return to 18th-Century imperial destruction and occupation of nations across Central and Southwest Asia.

Modi is also invited to the White House at the end of the September, after the UN General Assembly.

The Intention Is Clear

Many of the key protagonists in the New Economic Order are aware that this is a revolution in world affairs, which must be successful if the world is to avoid the global thermonuclear war being threatened by London and the White House. Russian Foreign Minister Lavrov, speaking to a youth camp in central Russia on Aug. 27, said that the U.S. was "going against the course of history" in its demonization of Russia and its attempt to stop the emergence of an "egalitarian international arena," a clear reference to the transformation of history centered on the BRICS developments.

His deputy, Sergei Ryabkov, speaking to *International Affairs* magazine on Aug 28, referred to the BRICS agreements with Africa and other developing nations: "Russia does not make its policy in these regions on the basis of political canons, so characteristic of our colleagues in the West." He said that the New Development Bank "has arisen due to the fact that the United States' inaction delays the IMF reforms. Certain countries have no influence on the decisions taken by the IMF. This situation does not correspond to the authority and responsibility of these states, primarily BRICS countries."

The world has changed, and a new process of development is coming into being. In a real sense, LaRouche and his movement have served as the midwife to that process—and have committed themselves to provide it with the Promethean gifts of science. Mastery of those gifts is what will ensure that the victory, which is so clearly visible before us, will not slip from mankind's grasp.

Nancy Spannaus contributed to this article.

WHO Alarm: Ebola 'Has the Upper Hand'

by Douglas DeGroot

Aug. 30—The World Health Organization (WHO) on Aug. 28 issued a statement of alarm, that at least 20,000 cases of the Ebola virus in West Africa are to be expected in the epidemic. "Every day this outbreak goes on, it increases the risk for another export to another country," said Dr. Tom Frieden, director of the Centers for Disease Control and Prevention, during his visit to Monrovia, Liberia. "The virus still has the upper hand."

The WHO said that by the end of September, it would release details of a plan to provide "support for the increasingly acute problems associated with food security, protection, water, sanitation and hygiene, primary and secondary health care and education, as well as the longer-term recovery effort that will be needed."

In reality, a full-scale economic mobilization is urgent—food, housing, infrastructure (transportation, power, sanitation, water), emergency employment programs, social aid, and all the rest are required (See *EIR*, Aug. 29, 2014).

Before the Ebola outbreak, which was identified in March of this year (likely starting in December 2013), the condition of health and the economy in West Africa was already abysmal, as a legacy of the British imperial systemic success in Africa. By all measures—from low life expectancy, to prevalence of disease and suffering—Guinea, Liberia, and Sierra Leone, the three nations where the epidemic is currently centered, and their neighbors, are among the lowest-ranking in the world. And now, the region is devastated. Profiles of each nation are given below. They underscore the necessity of international collaboration (see *Documentation*).

Disease Spread

As of the end of August, the death toll from Ebola was 1,500, and the number of confirmed cases was 3,500 or so. The WHO on Aug. 28 said these figures should be multiplied 3 or 4 times. The WHO "road map" is calculated on the basis of stopping the outbreak over the next 6-9 months.

But there is no assurance whatsoever that the virus will not have spread massively, even possibly globally, by that time. For example, on Aug. 29, the first case was reported in Senegal.

On Aug. 27, TheBRICSPost.com, a website dedicated to reporting on developments in the BRICS nations (Brazil, Russia, India, China, and South Africa), reported that those nations have issued a high alert for Ebola. Tens of thousands of people from the BRICS nations, especially India and China, live and work in Africa, including in the West African nations now afflicted.

Food Relief Is Urgent

Among the immediate relief requirements is food. The World Food Programme has issued a call for help in providing rations for at least a million people for some time. This is very much understated. There are 23 million people in the stricken region, and millions rely on subsistence farming for food. Commerical production has been disrupted for all the expected reasons associated with the dislocation and upset to the region because of the epidemic: Field labor will be missing for harvest, which starts in a few weeks. Transportation of crops will be unreliable. Storage, processing, and distribution will be disrupted. The staples are rice, cassava, and palm oil; cassava, once harvested, must be processed into flour within a week, or it will rot.

UN officials are reporting that the food disaster is growing. Jean-Alexandre Scaglia, representative of the Food and Agriculture Organization in Liberia, said that "people are saying: 'We're not afraid of dying from Ebola, we're starving.'" Travel restrictions are limiting access to food, and local markets are shutting down. There is even the danger that farmers will abandon their fields. "Many of the countries that traditionially produce a lot of surplus, especially surplus to feed the capital, are the main Ebola hot spots," said Scaglia.

Riots have broken out in some areas where quarantines have been established.

In a situation where world food supplies have already been driven down by the British Empire's insistence on a market system and free trade, this disaster can only be met by dumping the World Trade Organization and producing for urgent need.

Documentation

African Epidemic Area Was Already Stricken

by Douglas DeGroot

Aug. 25—The three West African nations where the Ebola epidemic is currently centered—Guinea, Sierra Leone, and Liberia—are among the poorest in the world, thanks to the criminal nature of the current world financial system which has kept them undeveloped, and made them prime regions for the virus to create a holocaust. Add to this the civil wars that destroyed the governmental and social institutions of Liberia, Sierra Leone, and the inland part of Guinea near the inland areas of Sierra Leone and Liberia. The following profiles, taken primarily from the World Health Organization (WHO), World by Map, the World Fact Book, and Nations Online, provide an overview.

Figure 1 shows the Centers for Disease Control and Prevention's published epidemiological pattern as of Aug. 14.

Guinea

Population: The total population (2014) is 11,474,000. Approximately 8 million in the rural areas; the largest urban population is in the capital, Conakry, with 1,786,000.

Geographic Area: 245,860 sq km (95,000 sq mi), an area slightly smaller than the state of Oregon. Of this, 11.59% is arable land, and 2.81% of that is in permanent crops.

Economy: 76% of the population works in (mostly subsistence) agriculture, 24% in industry and services. Agriculture makes up only 22.9% of GDP.

The large number for agriculture, despite the limited amount of arable land, is an indication that a significant amount of the food consumed is grown in small plots around houses in villages.

The poverty is extreme. Gross national income per capita per year was $970 as of 2012. A 2006 estimate put 47% of the population below the poverty line.

The economy is based primarily on the export of bauxite (main source of foreign currency), some alumina refining, gold, diamonds, iron ore, coffee, fish, and agricultural products. As is the case in most of the rest of Africa, the exports are mostly unprocessed, as during the colonial period.

Health: Life expectancy is 57-59 years (Global Health Observatory). Total annual expenditure on health per capita was $67, in 2012. Total expenditure on health as percent of GDP, in 2012, was 6.3%

Guinea has 10 doctors for every 100,000 people. There are 0.3 hospital beds per 1,000 of population.

18.9% of the population has improved sanitation facilities: 32.7% of the urban population, 11.2% of the rural population.

72% of the population has "improved" sources of

FIGURE 1
Ebola Outbreak 2014

CDC

drinking water (protected from outside contamination, in particular from fecal matter): 92.2% of the urban population, 65% of the rural population.

Guinea has a very high risk of major infectious diseases:

Food or waterborne diseases such as bacterial and protozoal diarrhea, hepatitis A, and typhoid fever;

Vectorborne diseases such as malaria, dengue fever, and yellow fever;

Water-contact diseases such as schistosomiasis;

Aerosolized dust- or soil-contact diseases such as Lassa fever;

Animal-contact diseases such as rabies.

Creative Commons/EC/ECHO

Ebola in Guinea, April 6, 2014. The country has 10 doctors for every 100,000 people.

Education: The literacy rate is 41%.

2.5% of GDP was spent on education in 2012.

Power: Electricity production was estimated to be 969 million kWh/year in 2010, or 94 kWh/year per capita. Installed capacity (excluding private generators) was 395,000 kWh, of which 68.4% was from fossil fuels, and 31.6% from hydroelectric plants.

Transportation: Guinea has 16 airports, four with paved runways; 1,185 km of railways: 238 km standard gauge, and 947 narrow gauge.

As of 2003, Guinea had 44,348 km of roads, of which 4,342 km were paved.

Sierra Leone

Population: The population totals 5,979,000, according to WHO: 39.2% urban. The capital, Freetown, had a population of 941,000 in 2011. Urbanization is increasing at a 3.04% annual rate. Almost half of the population lives by means of subsistence agriculture.

The 1991-2002 war between the government and the Revolutionary United Front (RUF) killed tens of thousands, maimed many more, and led to the displacement of 2 million people, a significant number of whom fled to neighboring countries, and are now slowly coming back. The RUF bandits financed themselves by marketing diamonds and gold from alluvial mining.

Geographic Area: The area totals 71,740 sq km or 27,698 sq mi, a little smaller than South Carolina. It shares borders with Guinea and Liberia.

15.33% of the land is arable, with 1.88% permanently producing crops.

Economy: Poverty dominates the population. In 2004, 70.2% of the population was living below the poverty line. Gross national income per capita was $1,340 in 2012. 47.9% of the population works in agriculture, 18.5% in industry, and 33.5% in services, according to a 2013 estimate.

The economy is based on the export of diamonds, rutile, cocoa, coffee, and fish.

Health Care: Life expectancy is 57.39 years.

There were 22 physicians/100,000 population in 2010, and 0.4 hospital beds/1,000 population in 2006.

The expenditure on health per capita in 2012 was $96, according to a BBC report. Health expenditure was 18% of GDP in 2011.

60.1% of the population had improved drinking water in 2012: 87.1% of the urban population, 42.4% of the rural population. 13% had improved sanitation in 2012: 22.5% of the urban population, 6.8% of the rural population.

There was a high risk of major infectious diseases reported for 2013:

Food or waterborne diseases: bacterial and protozoal diarrhea, hepatitis A, and typhoid fever;

Vectorborne diseases: malaria, dengue fever, and yellow fever;

Water-contact disease: schistosomiasis;

Animal-contact disease: rabies;

Aerosolized dust- or soil-contact disease: Lassa fever.

Education: Literacy rate was 43.3% in 2011. Education expenditure was 2.9% of GDP in 2012.

Power: In 2010, electricity production was 145 million kWh, or 28 mKh per capita per year. Electricity-generating capacity was 145,000 kWh. Installed capacity was 102,000 kWh, of which 46.1% was from fossil fuels, and 52.9% from hydroelectric plants.

Transportation: Sierra Leone has eight airports, one of which has paved runways. There are 11,300 km of roadways, of which 904 km are paved. There are major seaports at Freetown, Pepel, and Sherbro islands.

Liberia

Population: The population was 4,190,000 million in 2012, according to WHO. 48.2% of total population was urban in 2011. The rate of growth of urbanization is 3.43% per year. The capital, Monrovia, had a population of 750,000 in 2011.

Many fled from the countryside to overcrowded conditions in shantytowns in the towns and cities during the wars which raged from the time of the assassination of President William Tolbert, in 1980, and then continued for 14 years, from 1999-2003, waged by the thugs who had in turn killed the coup leader who had overthrown Tolbert. During this 14-year period, the thugs mined and smuggled diamonds and gold to buy arms and perpetuate their activity.

Geographic Area: Liberia has 111,369 sq km (43,000 sq. mi.) of land area, which is slightly larger than Tennessee.

4.04% of its territory is arable land, 1.62% under permanent cultivation. 76.9% of the population works in agriculture (mostly subsistence farming), 5.4% in industry, and 17.7% in services.

48.2% of the population is urban.

Economy: The extractive industrial economy is based on mining (iron ore), rubber processing, palm oil processing, timber, and diamonds. 8% of the labor force is involved in this industrial activity, while the mostly subsistence agriculture occupies 70% of the labor sector. Services account for the other 22%. The unemployment rate was estimated as 85% in 2003.

Extreme poverty prevails: National income in 2012 was $580; 80% of the population lives below the poverty line.

Health Care: Liberia had 1.4 doctors per 100,000 people, in 2008. The percentage has gone down with the departure of many foreign doctors after the Ebola epidemic flared up. Life expectancy was 60 years in 2012.

There were 0.8 beds/1,000 population in 2010. Total health expenditure per person was $66 in 2012. As a percentage of GDP, total expenditure on health was 15.5%.

There were six hospitals in Monrovia, and 21 in the rest of the country before the Ebola outbreak, but many closed, as the disease took a devastating toll on nurses and doctors.

Many of the medical resources of Liberia and Sierra Leone were also drained by 1.5 million cases of malaria for a combined population of 10 million.

16.8% of the population has improved sanitation conditions: 28.4% of the urban population, and 5.9% of the rural population.

As for drinking water, 74.6% of the population has improved conditions: 86.8% of the urban population, and 63% of the rural population.

As of 2013, Liberia had a very high risk of major infectious diseases:

Food or waterborne diseases: bacterial and protozoal diarrhea, hepatitis A, and typhoid fever;

Vectorborne diseases: malaria, dengue fever, and yellow fever;

Water-contact disease: schistosomiasis;

Aerosolized dust- or soil-contact disease: Lassa fever; animal contact disease: rabies.

Education: Education expenditures were 2.8% of GDP as of 2012.

Literacy rate is 60.8% of the total population. In 2012, education expenditures were 2.8% of GDP.

Power: 335 million kWh of electricity was produced in 2010, and 311.6 kWh was consumed, or 91 mKh per capita per year. Installed generating capacity was 197,000, 100% of which was from fossil fuels.

Transportation: Liberia has 29 airports, two with paved runways; and a four-kilometer pipeline; 429 km of railway: 345 km with standard gauge, 84 km with 1.067 gauge. Most sections were inoperable because of damage during the wars which took place from 1980 to 2003.

There are 10,600 km of roads, of which 657 km are paved.

September Showdown: NATO Convenes, Congress Returns

by Jeffrey Steinberg

Sept. 1—The next week is showdown time for the Obama Administration and the British Empire on two strategic fronts. On Sept. 4, the heads of state of the NATO countries will convene in Cardiffe, Wales, to consider further sanctions and military deployments targeted against Russia. And four days later, the U.S. Congress will return to Washington from its August recess to take up the issue of President Obama's latest illegal war—the deployment of over 1,000 U.S. troops, F-18 fighter jets, and B-1 bombers targeting the Islamic State jihadists in Iraq.

The big question going into the NATO summit is whether the U.S. and Britain will be successful in bullying Germany, France, Italy, Spain, and Turkey into going along with another round of punitive sanctions against Russia, on the basis of claims that Russia is conducting an "invasion" of eastern Ukraine. Even the Organization of Security and Cooperation in Europe (OSCE) monitors in the Russian-Ukrainian border have rejected the claims by Ukrainian President Petro Poroshenko that "hundreds" of Russian tanks have crossed the border to aid pro-Russian rebels. In a carefully worded statement late last week, the OSCE said that there is no Russian "invasion." The OSCE acknowledged that there are Russian "volunteers" coming into eastern Ukraine to aid the pro-Moscow rebels, but this does not come close to being an invasion.

Nevertheless, President Obama continued through the weekend to characterize the Russian actions as an "incursion," and put pressure on continental European nations to go along with a new round of harsher sanctions. Obama has insisted that Russia is increasingly isolated, and British intelligence mouthpieces such as Ambrose Evans-Pritchard, Wolfgang Münchau, and Edward Lucas have continued to promote the idea that Russia can be brought to its knees by tighter sanctions, including a shutout of Russia from the SWIFT bank clearinghouse system. These propagandists have failed to acknowledge that Russia is moving rapidly to establish a new set of currency and economic relations with non-sanctioning states, starting with the four other BRICS nations, Brazil, India, China, and South Africa.

Obama Ridiculed

Obama returned to Washington on Aug. 28 from his two-week vacation on Martha's Vineyard, and was immediately greeted by a solid wall of media attacks. At a White House press conference on his return, the President told reporters that, even though he had effectively declared war against the Islamic State (IS), and had ordered more than 100 bombing sorties against IS positions in northern Iraq, he "had no strategy yet" for destroying the group. This was after his own Secretary of Defense Chuck Hagel and his Chairman of the Joint Chiefs of Staff Gen. Martin Dempsey had told reporters a week earlier that IS posed a "strategic threat" to the United States and that the U.S. had to organize a com-

YouTube/RT

A meeting between Presidents Putin of Russia and Poroshenko of Ukraine, in Minsk last week, opened the prospect for a resolution of the conflict between the two countries; but Putin also cautioned that Ukraine was creating severe economic problems for both countries, by joining the EU Eastern Partnership program.

prehensive campaign, led by regional states, to wipe the group out before it succeeded in expanding its control.

Obama's "no strategy" statement was universally panned; he was even criticized for showing up at the White House wearing a casual Summer suit, which one reporter described as "more appropriate for attending a Bar Mitzvah in Miami Beach."

The most apt analysis came from Sen. Rand Paul (R-Ky.), who said Aug. 29: "If the President has no stragegy, maybe it's time for a new President."

Obama's biggest problems will come up on Sept. 8 when the Congress returns to Washington. Last week, three members of Congress—Walter Jones (R-N.C.), Jim McGovern (D-Mass.), and Barbara Lee (D-Calif.)—wrote to Speaker of the House John Boehner, demanding that he convene hearings on Sept. 8 to force the Obama Administration to come to Congress to lay out the case for military action in Iraq and Syria against the Islamic State.

Lyndon LaRouche has fully endorsed General Dempsey's call for wiping out IS, but is also adament, as is the general, that the President is obliged, under Article I, Section 8 of the Constitution, and the War Powers Resolution, to come to Congress for explicit authorization to carry out further military actions. Jones, McGovern, and Lee were initiating sponsors of House Concurrent Resolution 105, which passed the House in July by an overwhelming bipartisan vote of 370-40, demanding that the President get Congressional approval for further action in Iraq, in the form of a new Authorization for the Use of Military Force (AUMF).

On Aug. 30, Nancy Pelosi (D-Calif.), the House Minority Leader and former Speaker, gave her endorsement to the Jones-McGovern-Lee initiative, and urged Speaker Boehner to convene the debate to force the Administration to be transparent about its Iraq and Syria plans. Boehner's response has not been made public.

Alliances Needed

The *Independent* newspaper in London confirmed, along with several American publications, that the U.S. is already sharing military intelligence on IS with the Syrian and Iranian governments—in both instances, through intermediaries, such as the German BND (intelligence agency) and the Iraqi government. A Sept. 1 article in the *New York Times* mooted that the U.S. military is already coordinating with the Iranians, who are known to have forces on the ground.

Sane voices in the U.S. and Great Britain are pointing out the need for the U.S. to work with the Assad government against the Islamic State. Richard Haass, the president of the Council on Foreign Relations since 2003, and former Director of Policy Planning for the U.S. State Department under Colin Powell, in an article published in the London *Financial Times* Aug. 26,

wrote that it is necessary for the United States to look to Syrian President Bashar al-Assad for the ground forces to defeat the Islamic State in Iraq and Syria (ISIS), and that it cannot be defeated by airstrikes alone.

Haass said, "The fact is that the world cannot defeat ISIS in Iraq, or limit its potential elsewhere, if it continues to enjoy sanctuary in Syria." He then laid out four possible options—three of which he admits are out of the question. First, a ground invasion by the U.S., which, "given public attitudes, it is not going to happen." The next option—an Arab expeditionary force—is something he and every other Middle Expert knows will never happen; and third, looking to the Syrian moderate opposition, which has been an utter failure since 2011.

"The fourth option is to turn to the regime of Mr Assad to take the lead in defeating ISIS. This would mean accepting for the foreseeable future a regime that has committed war crimes; that is supported by Iran and Russia, with which the west has considerable strategic differences; and that is opposed by countries, including Saudi Arabia, with which the U.S. has more often than not co-operated. . . .

"The Assad government may be evil—but it is a lesser evil than ISIS, and a local one."

On Aug. 29, the *Financial Times* weighed in again on the issue of working with Assad in an article by Hoover Institution expert Philip Bobbitt. After recounting compromises that states have made with former enemies ever since the 15th-Century Renaissance, including Henry Kissinger's talks with Mao Zedong, Bobbitt quotes Haass's Aug. 26 article, and endorses his fourth option.

Confronting Russia?

Obama's inflamatory rhetoric against Russia is also blowing up in his face. While much of Congress is mindlessly jumping on board, on Aug. 31, Democratic Sen. Dianne Feinstein (Calif.), head of the Senate Select Committee on Intelligence, took the occasion of a Sunday talk show appearance to warn the President that he was on the wrong track. She said:

"I think there ought to be some direct discussions with Vladimir Putin. I think he is the singular figure in Russia. Russia is a huge country. Ukraine is a large country. The Crimea is gone. I think there ought to be steps taken to send people to talk with him; to have our Secretary of State talk with him personally. I think this is deeply personal with him. I really do. And I think he's calling the shots himself. And he's enjoying intensely high favorability in his country."

Feinstein continued, "People say, 'Well, just wait until the sanctions bite and the economy slips.' I don't think so. I think if Russians follow him, and up to date, they are following him, the Russians are very brave and very long-suffering, and they will tough out any economic difficulty."

Feinstein is right, and anyone with a reality orientation knows it.

On Aug. 29, addressing a youth camp outside of Moscow, President Putin denied that there was any Russian invasion of Ukraine. Nevertheless, he reminded the West that it would be a serious mistake to "mess with Russia," which has one of the world's largest nuclear weapons stockpiles (see box).

Putin had held a four-hour meeting with his Ukrainian counterpart, Petro Poroshenko, in Minsk, Belarus last week, which opened the prospect for a resolution of the conflict between the two nations; but in his public remarks, Putin cautioned Ukraine that it was creating severe economic problems for itself and for Russia, by signing onto the European Union Eastern Partnership program, which would allow European goods to be dumped on Ukrainian and Russian markets. Even as Poroshenko and Putin were opening a dialogue, Ukraine's Acting Prime Minister Arseniy Yatsenyuk announced that he planned to introduce legislation ending Ukraine's status as a "non-bloc" nation, and pushing for early membership in NATO. Ukraine has already joined a joint military strike force with NATO countries Lithuania and Poland.

Last week, Poland refused to allow a Russian civilian plane carrying Defense Minister Sergei Shoighu, who was returning from a visit to Slovakia, to fly over its air space. This petty provocation is just the kind of thing that is driving a confrontation with Russia.

Ultimately, the British and their allies, including President Obama, are pushing a new Cold War, or worse, against Russia, as a first step toward trying to break up the BRICS alliance for a new world economic system. This new alliance is based on freeing the world from the vise grip of the imperial financial system that has dominated world affairs since the assassination of President John F. Kennedy. The post-Bretton Woods financial system, centered in the trans-Atlantic region, is

bankrupt beyond repair, and is on the edge of collapse.

It is that danger, as well as the emergence of a viable alternative in the nations aligning with the BRICS New Development Bank and related initiatives, that has the British in a state of desperate flight forward. That is where the danger of war comes from, and the best way to end the danger is by pulling the plug on Obama, his Congressional protector Speaker Boehner, and the entire British financial system, by immediately reinstating Glass-Steagall in the U.S.

Putin: Attacks on Ethnic Russians Are Nazi-Like

Aug. 29—Speaking to the annual youth event at Lake Seliger in northern Russia, President Vladimir Putin compared the actions of the Ukrainian authorities against Russian ethnics to World War II Nazis.

In a very personal, several-hour session, Putin told the youth, "Sad as it might seem, this reminds me of the events of World War II, when the German Nazi troops surrounded our cities, like Leningrad, and directly shelled those cities and their residents," reported *Russia Today.* "Why do they [the militias] call this operation military-humanitarian? Because here's the sense of their actions today: to drive the artillery away from the major cities, so that they can't kill people. And what do we hear from our Western partners in reply: that they can't do that, that they should allow themselves to be torn to pieces and killed, and then they will be good guys? They [Kiev] should sit down at the negotiating table."

'We're No Fools'

From the quotes in *Russia Today*, the Lake Seliger event was a frank, open discussion that went after the Anglo-American policies.

"We're no fools," Putin said. "We saw symbolic cookies handed out on the Maidan [by Assistant Secretary of State for European and Eurasian Affairs Victoria Nuland—ed.], information support, political support. What does that mean? A full involvement of the U.S. and European nations into the process of the power change: *a violent unconstitutional regime change* (emphasis added).

He added that "the part of the country that disagreed with that [coup] is being suppressed with the use of jets, artillery, multiple launch systems, and tanks.... If these are today's European values, I'm gravely disappointed."

Putin wryly retold the old joke that in the U.S.S.R., everything made "turned into a Kalashnikov," to say that "anything the U.S. touches turns into Libya or Iraq."

But the issues addressed were deadly serious: He said that the Kiev massacres of citizens in "Donbass, Luhansk, Odessa," make "clear to us what would have happened to Crimea" if Russia had not "taken measures to provide free expression" to the people of Crimea.

He also issued a warning about the nuclear threat, saying, "Our partners, whatever shape their countries are in, and whatever foreign policy concept they are following, should always understand that it's better not to tangle with us, in terms of a possible armed conflict. But, thank God, I think it's not occurring to anybody today to launch a major conflict with Russia.... Russia is one of the most powerful nuclear states. It's not words, it is the reality.... We are strengthening our nuclear deterrence forces, we are strengthening our armed forces. We are beefing up our potential and will continue doing so."

But, this is "not to threaten anyone, but to feel secure."

Earlier today, Putin issued a statement calling on the militia groups of eastern Ukraine "to open a humanitarian corridor for Ukrainian service members who have been surrounded, so as to avoid any needless loss of life, giving them the opportunity to leave the combat area unimpeded, and be reunited with their families, returned to their mothers, wives, and children, and to quickly provide medical assistance to those who were injured in the course of the military operation."

In the same statement, Putin commended the militia for "achieving a major success," and called on Kiev's putsch government, again, to stop military action, call a ceasefire, and sit down at the negotiating table.

Dangerous Waffling by The German Government

by Rainer Apel

WIESBADEN, Aug. 28—German Foreign Minister Franz-Walter Steinmeier is certainly trying, along with his Russian counterpart Sergei Lavrov, to steer the Ukraine conflict in the direction of calmer diplomatic negotiations, but his leeway is not very great, because of the self-imposed limits of German foreign policy. So far, his efforts have been insufficient to bring about a sustainable ceasefire and direct talks between the Kiev transitional government and the pro-Russian rebels in eastern Ukraine. But that would be the only way to end the sanctions against Russia and the Russian counter-sanctions, before they do irreparable harm.

Wikimedia Commons/Armin Kübelbeck, CC-BY-SA

German Foreign Minister Frank-Walter Steinmeier: no room to maneuver.

One of the limitations of German foreign policy is the failure to speak plainly in opposition to flagrantly anti-Russian politicians in Europe and the United States, especially not to do so publicly. The population has a right to the unvarnished truth about the situation. Instead, the government throws around empty phrases such as "Alliance solidarity," "Europe stands together," and other such obfuscatory slogans.

The government is also only putting up passive resistance to certain plans of the NATO radicals for a massive military build-up along the eastern borders of the Alliance with Russia—thus delaying NATO's eastward expansion, but not really being able to put a stop to it. The constant reminders that Germany "does not go it alone, but always acts in the context of the EU," blocks any possible creative diplomacy in bilateral relations between Berlin and Moscow, even though that is the only way that the special German interest in preventing conflicts and war could be protected.

A sliver of autonomy may have been visible in Steinmeier's Ukraine diplomacy, but Chancellor Angela Merkel repeatedly neutralizes it with critical remarks about Putin and the Russian position, and by her failure to criticize the Kiev regime in any way, although it came to power as the result of a coup and not through elections. It is also unclear whether the Chancellor, in her numerous phone calls with the Russian President, has ever put forward anything truly constructive, or whether she has presented only the known positions of the EU and NATO. Merkel has so far not uttered any criticism of the basic policy EU and NATO policy of expansion to the East.

It always takes two to have a dialogue, she says, while accusing Putin of not wanting to talk; yet she apparently expects that the Russian side has to fully adopt the West's point of view. That's not going to happen, which also has to do with the fact that neither the EU nor the United States has ever taken up the constructive proposals made by the Russian side, and therefore the crisis is inexorably increasing.

Industry Breaks Its Silence

Even if it does not come to war in the near future, the economic damage of the EU/NATO escalation strategy is substantial. The Eastern Committee of German Industry has now, after weeks of silence, taken a more critical tone, on the eve of Merkel's visit to Kiev: With regard to exports to Russia, which were already declining before the decisions on sanctions against Russia—a 15.5% decline in the first half of the year compared with the same period last year—the Committee, as its chairman Eckhard Cordes said in Berlin on Aug. 22, is assuming that this negative trend will intensify due to the reciprocal economic sanctions introduced in August by the EU and Russia. "It cannot be excluded that by the end of the year, we will have a 20-25% decline in exports to Russia. This would jeopardize some 50,000 jobs in Germany."

He continued: "Even the discussion of sanctions in the Spring was poison, given the weakening economy in the EU and Russia. Everything must be done now to stop the spiral of sanctions, so that constructive discussions bring us out of the sanctions mode." Cordes warned about the unclear provisions of the EU decisions on "dual use" goods. A survey of the Eastern Committee showed that there are problems, for example, with supplying parts for escalators, excavators, pumps, agricultural machines, drilling machines, and railways. "While supplying entire machines is often harmless, their spare parts suddenly become a problem because of a possible military use," Cordes said. "This uncertainty and increasing delays in supply have the effect that Russian customers, one after another, are looking for suppliers from other countries. We have reason to fear that large sections of the Russian trade structure are shifting toward Asia and Latin America."

And that this relocation of trade flows risks irreparable damage to German exports. In the Chambers of Industry and Commerce of the German regions most affected by the sanctions, especially in the East, people are saying (although most not publicly) that you cannot do this in a country as export-dependent as Germany, since the markets could be lost for a long time, maybe forever. And because the federal government is backing the West's sanctions strategy, Germany will inevitably be drawn into the foreseeable expansion of the Western economic war, which, after Russia, will soon focus on the other BRICS countries, which are all expressing solidarity with the Russians, and are replacing a large part of the blocked European exports to Russia. The danger is unfortunately very real, that German industry, due to the government's solidarity with NATO and the EU, will remain locked out of the investment boom of the BRICS group and the numerous countries of South America, Africa, and Asia that are oriented toward it. If Germany can no longer export to large parts of the world, because it supposedly should not, then millions of jobs in our country are threatened.

The only alternative is for Germany to end its dangerous waffling, free its foreign and foreign trade policy from the straitjackets of the EU and NATO, and actively pursue a policy of cooperation along the Eurasian Land-Bridge, with participation in major infrastructure projects, such as the current expansion of the Suez Canal in Egypt.

Cheminade Advises France

Leave NATO, the EU; Align with the BRICS!

PARIS, Aug. 28—Less than five months after a new government was formed in France, Prime Minister Manuel Valls resigned on Aug. 25, taking the entire cabinet with him, after he very publicly criticized the austerity policy dictated by the European Union. As in other EU countries, the economy in France is in a free fall, after President François Hollande reneged on all the promises he had made during the 2012 election campaign. Unemployment, in particular, has continued to soar.

Economics and Productive Reconstruction Minister Arnaud Montebourg led the charge against the murderous policy carried out by Hollande on orders of the EU/IMF/European Commission Troika. Montebourg was sacked, along with some of the other "rebels" in the government, who did not question the principle of the policy, just the degree demanded.

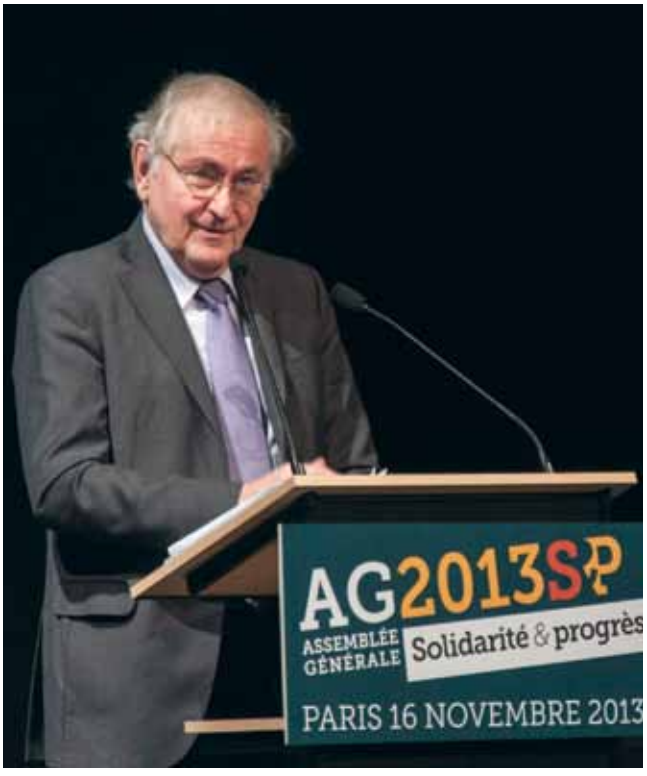
Montebourg was replaced by a young banker, Emmanuel Macron, who was Hollande's Secretary General at the Elysée until a few months ago, and is a strong proponent of supply-side economics.

The Socialist Party is holding its annual "Summer School" this weekend in La Rochelle, where fireworks are pre-programmed. Solidarité et Progrès (S&P) organizers are there to make sure that happens.

In a statement issued Aug. 27 under the title "Anger and Hope," former French Presidential candidate Jacques Cheminade, president of S&P, and longtime associate of Lyndon LaRouche, outlined the alternative to the suicidal course France and the EU have chosen:

Anger and Hope

"The challenge to us is to overcome our anger in order to draw creative energy from it. *Anger:* [Finance Minister] Michel Sapin, the self-proclaimed friend of finance, claims that there could be financial health in the present conditions. *Anger:* a President Hollande who is rejected by 56% of the Socialists and 81% of Frenchmen names a Prime Minister for the second



EIRNS/Julien Lemaître

French leader Jacques Cheminade is challenging the government to find the "boldness of combative intelligence and creative work," that characterized the great French leaders of the past.

time, who is rejected by more than 60%. *Anger:* Europe and France are committed to self-destructive austerity. *Anger:* while François Hollande and Manuel Valls have capitulated to the financial oligarchy, Arnaud Montebourg proposes to use Obama and Italian ECB President Mario Draghi's printing press which bails out Wall Street and the City of London, while daring to demand at the same time that we 'free ourselves from the addiction to public spending,' although that spending serves labor and the real economy. *Anger:* the Socialist *frondeurs* [malcontents] propose to increase household purchasing power from EU5 to EU16.5 billion, and to reduce financial aid for companies from EU41 to EU22.5 billion, which comes down to offering a band-aid for a serious wound, but no new medicine to heal the wounded person.

"Thus, proponents of supply-side economics face off against the defenders of demand, but they all remain within the liberal scheme of monetary supply and demand, without taking into account real production and the needs of human labor! It is true that Mélenchon, with his 'rustic' energies, has nothing to feed a better society. It is true that the catch-all populist *boulangisme* of the Front National is an indigestible pudding. It is true that the official right-wing party demands even more austerity than the left. But that is no reason and no excuse not to change course.

"Let us rather say loud and clear what needs to be said. The banking reform law of July 26, 2013 was a tragic mistake. By allowing the major banks to take control of the government apparatus of our country, the Socialist leaders betrayed their own movement, that of great Socialist leaders Jean Jaurès and Léon Blum. They accepted a world in which the issuance of EU5 only adds EU1 extra to gross domestic product, and the rest disappears into the financial pit. Léon Blum, in 1935, in *Le Populaire*, denounced the 'attack against sovereignty by private grabbers of public credit,' and called to 'fully exploit the revolutionary situation opened up by that attack.'

"Who, from among those in power today, dares to say that 59% of our public debt comes from tax breaks and excessive interest rates of the past? Who will say that the low rates of today only serve to maintain different forms of speculation, while families are ruined by deflation? Who will tell us that the transfer of wealth to lenders and shareholders only amounted to some 3% of French value added in 1980, but amounts to 9% today?

The Way to the Future

"What is the way out of this system, or rather, the way into the future? Leave NATO, the euro and the European Union. Not to withdraw behind national borders, but to join the new world being defined by the BRICS, from Brasilia to Beijing, and from Cape Town to Moscow, a group which, although imperfect, expresses what Jaurès, in Buenos Aires in 1911, called the 'uplifting power of life.' A world which, on the basis of a productive public credit policy, is developing nuclear fusion, the energy of tomorrow, and all the high technologies related to it, from robotics to bio- and nanotechnologies, and digital technologies, which our country could contribute so much to.

"This is urgent, because the second phase of the great financial crisis before us is combined with the danger of war. Yes, we have a lot to give and to receive, provided we awaken in ourselves that 'boldness of combative intelligence and creative work' which our leaders have lacked for far too long."

NEW PARADIGM FOR MANKIND

The Coming Promethean Renaissance

LaRouchePAC's New Paradigm for Mankind program for Aug. 27, featured three members of the LPAC Science Team, Benjamin Deniston, who hosted, Jason Ross, and Megan Beets (http://larouchepac.com/node/31628). Deniston opened by referencing a discussion with Lyndon LaRouche the previous evening, about the BRICS conference in Brazil in mid-July, and the dramatic shifts that have begun as a result of that conference. LaRouche, he said, emphasized that our association has a critical role in this process. Of special note is the work that Helga Zepp-LaRouche is doing in China, including her participation in an important conference there, titled, "One Belt, One Road" referring to China's Silk Road policy. Her address was titled, "The Silk Road in the 21st Century Is the Cornerstone of Peace and Order."

The conference brought together over 100 experts, scholars, and government officials from 21 nations. Among them: China's Deputy Education Minister and Vladimir Yakunin, the president of Russian Railways.

China Daily wrote: "The 'One Belt, One Road' conference was the principle of mutual negotiation, joint development and sharing to further deepen cooperation between China and other countries along the Silk Road. . . ."

Deniston summed it up thusly: "I think this is just another highlight expressing the shifting world situation: We have an open dialogue now among leading nations about how to actually cooperate in a completely new era of development, education, cooperation and how nations can cooperate to better all mankind through these cooperative efforts. And this is now on the table in an active way that hasn't happened in many decades, if ever, really, in history. So this is an incredibly exciting period."

He then reported what LaRouche had identified as the key principle to be added to the discussion: "that this has to be the era of Prometheus, the Promethean conception of man needs to come forward, is already coming forward, but we need to bring it further forward and make it the central pillar to this whole shifting world situation."

Then Jason Ross began.

The Courage of Prometheus

Jason Ross: Yes, Prometheus is in every Renaissance, and we're on the verge of the greatest of human renaissances. That's what we have the potential for right now, especially given China's commitment to helium-3 exploitation on the Moon. This would be really bringing mankind to a fundamentally higher platform than we've ever had before, and it is a Promethean outlook.

I just want to start with an introduction to Prometheus: The story is probably familiar to those who have been keeping an eye on this website in a thorough way. To say it again, Prometheus took fire from Zeus. Zeus did not want mankind to have fire; in fact, Zeus wanted to destroy mankind. He was sick of us, he was going to wipe us out, and instead, Prometheus pre-

"Prometheus is in every Renaissance," declared Jason Ross, and we're on the verge of the greatest of human renaissances." The painting by Heinrich Füger depicts Prometheus bringing fire to mankind (1817).

vented that and took this power, this higher form of power, fire, and said, I'm giving this to mankind.

But he did much more than that. So I'd like to read the best story we have on this, which comes from Aeschylus, who wrote several plays; the only one we have left [from the trilogy] is *Prometheus Bound*.[1] This is toward the beginning of the play; Prometheus has been captured by Zeus's henchmen; he has been chained to a rock, a stake has been put through his chest, attaching him to this rock. An eagle, which is a symbol of Zeus, comes and eats at his guts every day. And, you know, he'll live forever, so this is his experience till the end of time. That's how things open.

1. Translation by Herbert Weir Smyth, Loeb Classical Library, Vols. 145 & 146; Cambridge, Mass., Harvard University Press (1926).

And the Chorus comes to visit, and here's what Prometheus says:

"You ask why he torments me, and this I will now make clear. As soon as he had seated himself upon his father's throne"—Zeus overthrew his father Kronos, and then became the head honcho—"he immediately assigned to the deities their several privileges and apportioned to them their proper powers. But of wretched mortals he took no notice, desiring to bring the whole race to an end and create a new one in its place. Against this purpose none dared make stand except me—I alone had the courage; I saved mortals so that they did not descend, blasted utterly, to the house of Hades. This is why I am bent by such grievous tortures, painful to suffer, piteous to behold. I, who gave mortals first place in my pity, I am deemed unworthy to win this pity for myself, but am in this way mercilessly disciplined, a spectacle that shames the glory of Zeus.

Chorus: Iron-hearted and made of stone, Prometheus is he who feels no compassion at your miseries. For myself, I would not have desired to see them; and now that I see them, I am pained in my heart.

Prometheus: Yes, to my friends indeed I am a spectacle of pity.

Chorus: Did you perhaps transgress even somewhat beyond this offence?

Prometheus: Yes, I caused mortals to cease foreseeing their doom.

Chorus: Of what sort was the cure that you found for this affliction?

Prometheus: I caused unseen hopes to dwell within their breasts.

Chorus: A great benefit was this you gave to mortals.

Prometheus: In addition, I gave them fire.

Chorus: What! Do creatures of a day now have flame-eyed fire?

Prometheus: Yes, and from it they shall learn many arts."

Mankind Before Prometheus

Prometheus goes on to describe what mankind was like, before he had the Promethean gifts to mankind:

Prometheus: Still, listen to the miseries that beset mankind—how they were witless before and I made them have sense and endowed them with reason. I will not speak to upbraid mankind but to set forth the

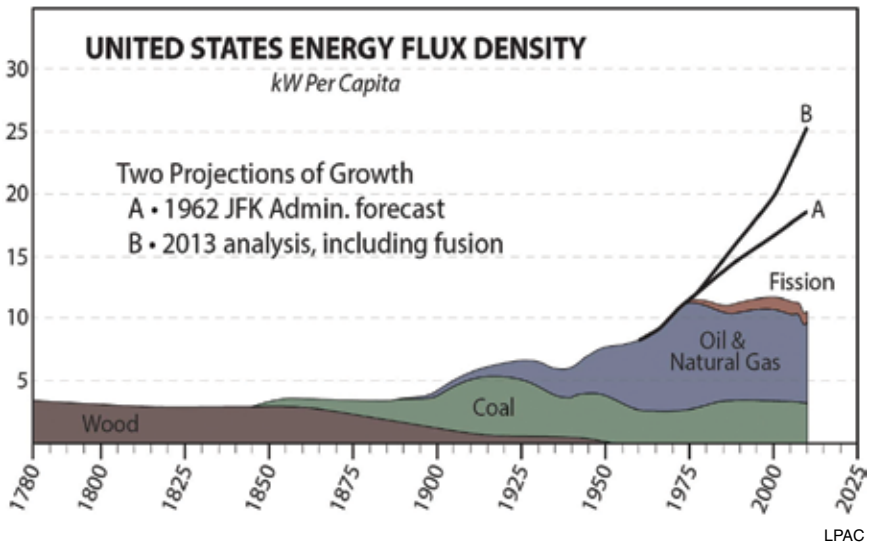
friendly purpose that inspired my blessing. First of all, though they had eyes to see, they saw to no avail; they had ears, but they did not understand; but, just as shapes in dreams, throughout their length of days, without purpose they wrought all things in confusion. They had neither knowledge of houses built of bricks and turned to face the Sun nor yet of work in wood; but dwelt beneath the ground like swarming ants, in sunless caves. They had no sign either of winter or of flowery spring or of fruitful summer, on which they could depend, but managed everything without judgment, until I taught them to discern the risings of the stars and their settings, which are difficult to distinguish.

Yes, and numbers, too, chiefest of sciences, I invented for them, and the combining of letters, creative mother of the Muses' arts, with which to hold all things in memory. I, too, first brought brute beasts beneath the yoke to be subject to the collar and the pack-saddle, so that they might bear in men's stead their heaviest burdens; and to the chariot I harnessed horses and made them obedient to the rein.... It was I and no one else who invented the mariner's flaxen-winged car that roams the sea. Wretched that I am—such are the arts I devised for mankind, yet have myself no cunning means to rid me of my present suffering.

Chorus: You have suffered sorrow and humiliation. You have lost your wits and have gone astray; and, like an unskilled doctor, fallen ill, you lose heart and cannot discover by which remedies to cure your own disease.

Prometheus: Hear the rest and you shall wonder the more at the arts and resources I devised. This first and foremost: if ever man fell ill, there was no defense—no healing food, no ointment, nor any drink—but for lack of medicine they wasted away, until I showed them how to mix soothing remedies with which they now ward off all their disorders.... Now as to the benefits to men that lay concealed beneath the earth—bronze, iron, silver, and gold—who would claim to have discovered them before me? No one, I know full well, unless he likes to babble idly. Hear the sum of the whole matter in the compass of one brief word—every art possessed by man comes from Prometheus."

FIGURE 1



Prometheus vs. Zeus

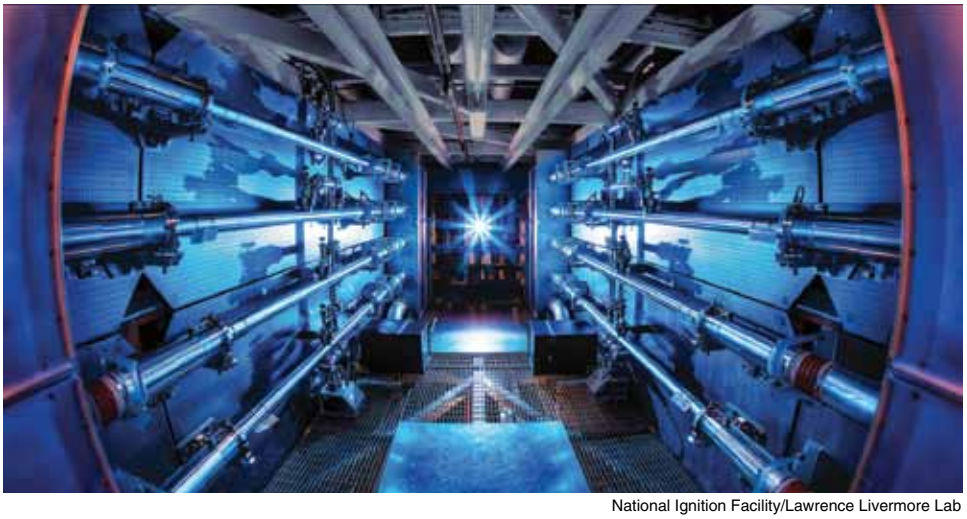
So, who is Prometheus? His name means "forethought," that's one thing. Think about the description of all these things that he gave mankind, just to cover them again. It wasn't just fire, right? He said, housing—people did not build houses, they lived in caves. They didn't know what time of year it was; they didn't have a calendar. You couldn't have agriculture without that. Numbers, poetry, "with which to hold all things in memory." There wasn't writing! Take, for example, the works of Homer, those were repeated orally. We've got other works, from India, for example, maintained through an oral tradition over centuries and millennia; by poetry, you could "hold these things in memory."

Beasts of burden, wheels, chariots, medicine, metallurgy, astronomy—all of these things, and he says, "all arts devised by man come from Prometheus," because the ones that hadn't yet existed, also came "from Prometheus." That's still a true statement.

Now let's look at Zeus. Prometheus is real; so is Zeus. Zeus was, let's say, the original oligarch. He wasn't the first one, but he was the prototypical oligarch, keeping the masses of mankind in a degraded state, unable to use the kinds of powers and knowledge that he has. That's your clearest definition of an empire. And it's happening right now: Zeus is at the helm again.

So, let's look at different kinds of fire (**Figure 1**). This is a chart of the use of energy per capita in the United States over our history. The different colors go from wood, to coal, oil, and natural gas, and that red sliver at the right is nuclear fission.

FIGURE 2
Lawrence Livermore Fusion Experiment



National Ignition Facility/Lawrence Livermore Lab

You can see, over time, we've had two things happen: one, an overall increase in energy use per capita, and two, a change in what the basis of that energy source is. We don't use more energy today because we burn more trees than our pioneer ancestors did. We burn *fewer* trees! We have more forests now than we did 150 years ago because we're not using them constantly for heat, and to make charcoal and other things.

Coal: The introduction of coal, that was a higher power—we've got coal, oil, and natural gas; we've got fission, and then what happens? Over the past 30 years—over the past, more like 50 years, since the killing of Kennedy—things still moved forward, but the trajectory shifted at that point; we haven't had this continued growth. The energy per capita hasn't increased, and where's the new source? Where's fission?

President Kennedy believed it would be up to where you see the letter A, at this point, in terms of our power use, and that would be due to increasing use of fission. Didn't happen. B is where we might be today, had we developed fusion.

Let's talk about how this happens. Here's one experiment on this (**Figure 2**). This is part of the Lawrence Livermore experiment to create fusion.

Thermonuclear fusion is the next platform for society. Unlike bears that wander around hoping to find something sitting around they can eat, *we create our food*. Malthus was wrong: The idea that we're going to run out of food because resources grow more slowly than human population—it's exactly the opposite. I think Malthus would find that people—go back 50 years—the standard of living in a developed country was obviously far better than England in Malthus's time, despite having more people. Because people create wealth, we don't just eat it like a bear eating fish out of the stream.

The Platforms of Power

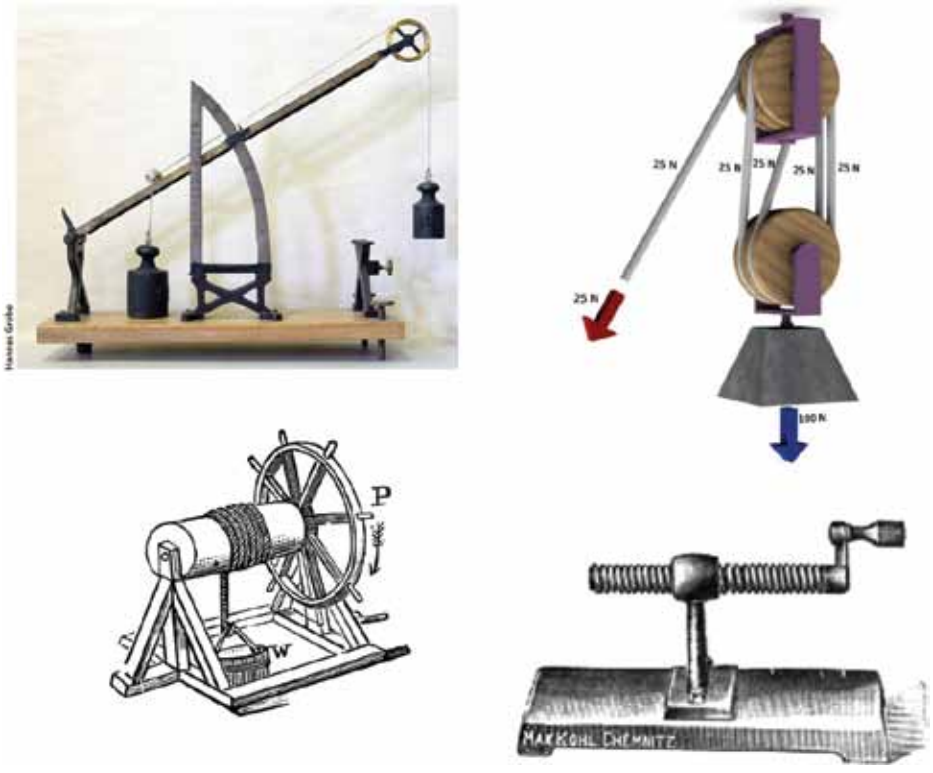
So, let's discuss these different platforms that we've got. The first one, you can talk about, let's separate it into physical, chemical, and nuclear. If we look back at physical powers, these are some of the simple machines of Archimedes: We've got the screw, the pulley, the wheel, the inclined plane (**Figure 3**). These are helpful things; they let you transform motions into different directions, transform a force into different directions; with pulleys, you can lift things you couldn't possibly lift without them. So these are all very helpful, they're all physical.

If we look at the materials used in the physical era, the way we described things before chemistry or nuclear science, was in terms of physical properties: How hard is something? How flexible is it? How sharp will this rock get if I chip off parts of it with another rock? How durable is this metal?

People knew of gold a long time ago, but gold is not the most useful metal for things besides decoration—at least, it wasn't then. Color, size, density, those are the sort of things you would look at, and those were the sort of things physical machines could change. How heavy does something seem to be? When you've got a lever or pulley, it changes. You rub things against each other, you change their sizes, you change their sharpness. Things are made out of other physical things. What's a rock made out of? Smaller rocks, and you can make them by breaking them off. Or maybe dust. But that's what it was.

With the development of chemistry, we got a whole new capability of power, a whole new Promethean power, and a whole new vocabulary. This first came up with what Prometheus had described there as the "gifts of the metals beneath the earth." The first one of these,

FIGURE 3
Archimedes' Simple Machines



LPAC

the first major one, was malachite. Malachite's a blue-greenish rock (**Figure 4**).[2]

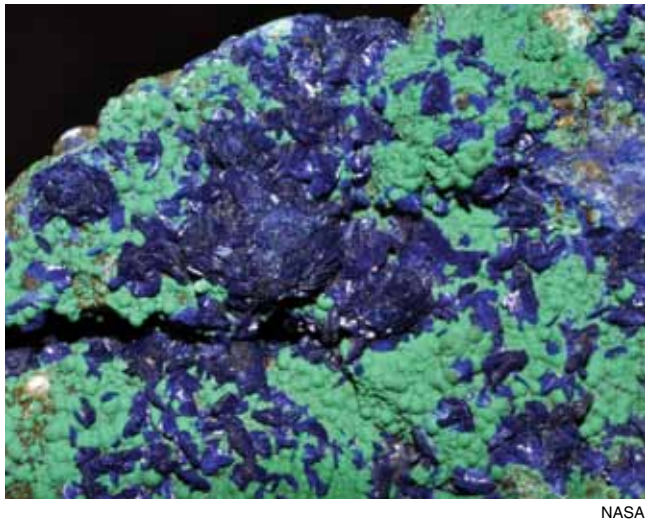
It looks like a rock, it doesn't look like a metal. People knew what metal looked like. You can find bits and pieces of copper; gold, you can find bits and pieces of, just in the earth, on the ground. But this blue-green rock, if you cooked it, if you heated it in a special kind of fire made with charcoal, it wouldn't melt, it would turn into metal. That's not a physical change. You can't grind one rock with another rock, like you grind your cornmeal; you can't lift a rock with a pulley, you can't twist a screw against it; you can't put it on an inclined plane; you're not going to scrape it; you're not going to chip it—you can do all of those things to malachite—it's not going to turn into copper. Yet, the first chemical machine was metallurgy. That's the first simple *chemical machine*.

And then, the really huge breakthrough in using Prometheus's fire in a whole new way—because it had its applications in the Stone Age already—you could harden rocks with it. If you boil wood in water, you can bend it more easily for making baskets and things like that. You can cook food, of course. There's a lot of things you can do with fire—scare away animals that might eat you, that sort of thing.

With the chemical use of fuel, which we saw with coal in that chart, with the steam engine, we're now using a property of this rock, coal—we're not using how heavy it is, we're not using the fact that it's black, we're not using the fact that you could draw on another stone with it, and write with it if you felt like it. We're not using that it's sharp, or that it's durable. We're burning it. We're doing something total different with it. By burning that, and using that heat, boiling steam, using it to push pistons at first or turbines and other things later, we're able to use this new form of fire, and *totally* transform what we did.

This is the first freedom from the Sun and muscles.

FIGURE 4
Malachite



NASA

2. See "New Paradigm for Mankind," Jan. 15, 2014 (http://larouchepac.com/node/29507).

There are water wheels for mills and things, but the steam engine is a *total* transformation. Just as a comparison, the energy that you get from burning 1 kg (2 lbs) of coal, using it in a steam engine to run a factory, or today, we're using it to make electricity—but let's use it in terms of a factory, the amount of motion that you can get from a steam engine, from burning 2 lbs of coal. That's the same as if you had 200 *one-ton* bricks of coal, each raised to the height of a person, and let's say that they're all sitting on top of levers or pulling on pulleys or that sort of thing: *200 tons* of coal, falling through the height of a person, would be able to give the same amount of push, or to spin that axle the same amount, as burning just 2 lbs of it: It's a *million* times more powerful. You could think of it that way.

Now, that sounds silly—you wouldn't do that with coal. But we do it with hydro plants all the time. A huge amount of water has to go through a plant, a lot more than the amount of coal that you burn.

Chemistry's New Vocabulary

With chemistry, we've got a whole new vocabulary. Our understanding of the world is totally transformed. Chemical properties came to exist. For example, diamond and coal don't look very much alike; in fact, they don't really look anything alike! Except that neither looks like a metal, but other than that, one is clear, one is black; one's hard, one's not very hard. Their conductivities of heat are very different, their electrical conductivities are very different, their densities are different. There's really nothing in common about them in the physical world. In the chemical world, we would now say, oh, they're both made of different arrangements of carbon.

What's carbon? Carbon's not clear, and it's not black; it's not a resistor and it's not a conductor; it's not a dense material and it's not a light material. Carbon is a potential to participate in chemical transformations and compounds. So a whole new vocabulary has to exist for these chemical properties, like things like enthalpy, which is the amount of heat evolved in combining atoms into molecules; or valence, related to the electrical potential of different elements. The word "element," the idea of breaking down, Mendeleyev laying out the table of the elements, something periodic about the nature of matter. "Atomic mass." So there's a whole new vocabulary that simply doesn't appear in the physical world. You don't think about what the atomic mass of a rock is; it doesn't have one. There isn't a "valence" for wood. Those are chemical properties.

To move ahead to nuclear, once again, we're looking at a whole new domain of matter. We're both getting smaller, and we're getting more powerful. So the first form of nuclear power we're able to use, this nuclear fire, this new Promethean ability, is fission, which is breaking apart large nuclei into smaller pieces.

If you've got some uranium, you see that there's a difference between radiation, which just makes rocks get warm, and what happens in a nuclear power plant. Nuclear power plants don't operate by radiation—that's when elements emit a little bit of energy—it's not very much. What we do, is we speed that process up by a nuclear configuration that causes a process to occur where these nuclei start to break apart and shatter, instead of just emitting things. That's what fission is. That's a million times more powerful than coal. If you have a pound of coal, and you have a pound of uranium, you get a *million* times more out of that pound of uranium. It's as much of a difference, as using rocks to push on levers, or rolling them down a hill so that they'll push a wheel at the base of the hill, and spin something for a factory, compared to burning them in a steam engine. Uranium is exactly a comparable shift in terms of its being six orders of magnitude more powerful.

The other way, fusion, the combining of elements, think about this: Many of the fusion experiments today are based on trying to fuse deuterium and tritium; those are two kinds of hydrogen. If a chemist combines two hydrogen atoms, what do they get?

Deniston: Hydrogen?

Ross: They get H_2, they just get normal hydrogen gas, like you fill the *Hindenburg* with. That's all you get, if you combine them chemically.

You combine those *same two things*—instead of normal hydrogen, let's say, deuterium and tritium, but you can combine them chemically as well, if you combine them in a nuclear way, you now get a million times more out of that combination than a chemical combination. Totally different way of operating on these things.

The last thing to say about this, and about helium-3, which makes it so important, is that helium-3 really represents a higher level than fusion, and we don't really even have fusion right now. We have it in bombs, and those haven't been used for peaceful purposes, or useful purposes, as of yet, but helium-3 takes us to another level. Because in today's nuclear plants, the way we get the energy is, we've figured out this very clever way of getting these nuclei to hit each other with neu-

trons and split apart, and hit neutrons to other nuclei, and, in the end, all it does is get hot. In the end, it works just like a coal plant: It gets hot, it heats up a working fluid like water, it boils it into steam, it blows through a fan and makes a shaft spin—that's all you've got, that's all we do right now.

With helium-3, because we'll be able to produce products which are charged, we'll be able to directly create electricity, we'll be able control the output of this, we'll actually be having a *nuclear* power plant, a nuclear technology. Right now, it's physical nuclear, it's still based on heat, this physical property. Boiling water, that's physical, it's not even chemical, and we're still tied to this right now. It's silly.

So, the question all of this raises, is well, how did we do that? First off, this is a characteristic of the human species. We don't have fixed resources, we don't have a fixed carrying capacity. LaRouche uses the metric of potential relative population density as a measure of economic value. He says, if your society is acting in a way that the *potential* relative population density—the number of people you can support in a certain area—if you're acting in a way where that's increasing at a growing rate, then you're contributing economic value to society. Economic value is not about what people are willing to pay for whatever they're willing to pay for. Economic value is not about how much the going rate is for a prostitute in Las Vegas; it's about how are you changing society to be part of this process, this human process?

So, in case you're wondering about this image (**Figure 5**), this is the production of a certain kind of nuclear isotope for medical testing. This actually is a nuclear application, unlike our power plants, which still just create heat.

FIGURE 5
Nuclear Isotope for Medical Testing

NASA

Plato vs. Aristotle

So, how do we do make this all happen? How did this discovery occur? These two men have *very* different views of this (**Figure 6**). This is the center of Raphael's painting "The School of Athens." On the left you have Plato, or, you have Leonardo da Vinci, who is standing in for Plato; and on the right you have [a portrait of Michelangelo] as Aristotle.

FIGURE 6
Aristotle and Plato, The School of Athens (detail)

From Raphael's great fresco in the Vatican (1509).

And Raphael definitely got something about these two guys. If you want to compare: they're wearing different colors, I don't know what you can say about that, but they've each got their hands in a certain position, they've each got their books in a position, and you can see their feet in a position. You can see Aristotle's really nice sandals and his gold-fringed clothes there; you can see Plato is barefoot. But you see their positions—take a look: Plato's feet—he's walking forward; Aristotle's not walking anywhere. That's the way you stand when you're staying put. And he can't walk anywhere, because this book he wrote, that he thinks is so

smart, is standing right in front of his leg. So he's not going anywhere. Plato's carrying his knowledge with him and moving forward. Plato's pointing up. Aristotle is either trying to keep away people who are demanding his autograph, or he's saying, "Nope, reality's down here." This painting is a very accurate portrayal of these two guys.

So this is a very important distinction. It comes to us today, even if you haven't heard of these fellows, the fight between these two methods, which is a Promethean and a Zeusian method—you know, they're not just two "Greek philosophers." That's like saying Beethoven and Hitler were "both Germans." (Well, actually Hitler was Austrian.) Anyway, but you know—they're totally different people.

This is a quote from Aristotle on maybe the aptly named *Posterior Analytics*. He talks about how do we discover things, how did all this happen, how do we change this energy-flux density? How do we figure out nuclear power? How do we figure out metallurgy? Aristotle says, "We have already said that scientific knowledge through demonstration is impossible, unless a man know the primary immediate premises." So it's already about words and language. "How does man know?…

"We must possess a capacity of some sort which is at least an obvious characteristic of all animals, for they possess a congenital discriminative capacity, which is called sense perception.…

"So our sense perception comes to be what we call memory and out of frequently repeated memories of the same things develops experience; for a number of memories constitute a single experience. From experience again … originates the skill of the craftsman and the knowledge of the man of science.…."

It sounds more like he's talking about how you train a dog—that experience and knowledge come from frequently repeated memories, from doing the same thing again and again. You can certainly learn things about how to do various technical skills and things that way, but where does the man of science come from? How's the discovery come out of that?

Well, here's another quote from Aristotle in his work *De Anima* (*On the Soul*), where he explains what it is that makes human beings different, and it's not just that we walk on two feet and don't have feathers. He says:

"Since, according to common agreement,"—and there's no better way to know things than "common agreement"—"there is nothing outside and separate in existence from sensible spatial magnitudes, the objects of thought are all in sensible forms, both abstract objects and all the states and affections of sensible things. Hence, no one can learn or understand anything in the absence of senses, and when the mind is actively aware of anything, it is necessarily aware of it along with an image, for images are like sensuous contents.…"

("No one can learn or understand anything in the absence of the senses," so, what makes our senses special?)

Aristotle says: "While in respect of all the other senses, we fall below many species of animals, in respect to touch, we far excel all other species in exactness of discrimination. That is why man is the most intelligent of all animals."

Here you see, this is a painting of Aristotle using his technique to discover how Homer thought (**Figure 7**).

FIGURE 7
Aristotle Contemplating a Bust of Homer

Rembrandt (1653)

He's feeling his head. I think that's probably one of the big problems with education. He would say, if only more people felt Albert Einstein's hair, we'd have a lot more physicists today who could do things! So, here he is: Look at his eyes. He looks kind of sad and clueless, so he's looking at Homer's head and he's feeling Homer's head. It looks kind of like Homer [who is blind] is looking at him, and thinking, "Keep your hand off me, you creep!" This is a painting by Rembrandt ["Aristotle Contemplating a Bust of Homer"]. It's in New York at the Metropolitan Museum of Art.

Socrates (second from right, as depicted in Raphael's "The School of Athens"), taught that the soul has the ability to know the truth, and that it can be elicited it through "recollection."

So, according to Aristotle, we have this magnificent sense of touch; that's pretty silly. That we only learn things by repeated experience, that we have understanding in terms of the senses. And Aristotle's view about proof, or knowledge, or demonstrations comes from syllogisms, which are—well, it wouldn't be right to call them word games, but logic. That's the basis of his understanding: logic, that we combine thoughts that we have in a way that's not surprising, and then we come to new conclusions. That's Aristotle.

Socrates: Where Do Ideas Come From?

Let's look at Plato; he has a different view. Plato is the man who wrote down the dialogues that Socrates appears in, as a character. The *Timaeus*, which is the book that he's holding in his hand, is a dialogue in which Socrates has a discussion with other people. Socrates is a real person, but he appears as a character in Plato's dialogues—that's how we know of him.

So, Socrates (or Plato) would say, "Well, how does an idea like equality come into the mind? You never experience two things being equal, where did that come from? Was that already there? How do you induce, by repeated experience, a new concept? If you experience something, in a certain way, using a certain language, looking for certain things, and you do it repeatedly, where is the language for a new concept going to come from? Where's metaphor going to come in? It won't.

So I'm going to read a short section from *Meno* dialogue, in which Socrates is speaking with Meno about exactly this topic. Socrates tells Meno that he's going to explain to him an interesting theory that he heard from somebody. Here's Socrates [translation by Benjamin Jowett]:

Socrates: The soul, then, as being immortal, and having been born again many times, and having seen all things that exist, whether in this world or in the world below, has knowledge of them all; and it is no wonder that she [the soul] should be able to call to remembrance all that she ever knew about virtue, and about everything, for as all nature is akin, and the soul has learned all things; there is no difficulty in her eliciting, or as men say learning, out of a single recollection—all the rest, if a man is strenuous and does not faint; for all enquiry and all learning is but recollection. And therefore we ought not to listen to this sophistical argument about the impossibility of enquiry: for it will make us idle; and is sweet only to the sluggard; but the other saying will make us active and inquisitive. In that confiding, I will gladly enquire with you into the nature of virtue.

Meno: Yes, Socrates; but what do you mean by saying that we do not learn, and that what we call learning is only a process of recollection? Can you teach me how this is?

Socrates: I told you, Meno, just now that you were a rogue, and now you ask whether I can teach you, when I am saying that there is no teaching, but only recollection; and thus you imagine that you will involve me in a contradiction.

Meno: Indeed, Socrates, I protest that I had no such intention. I only asked the question from habit; but if you can prove to me that what you say is true, I wish that you would.

Socrates: It will be no easy matter, but I will try to please you to the utmost of my power. Suppose that you call one of your numerous attendants, that I may demonstrate on him.

Meno: Certainly. Come hither, boy.

Meno calls one of his slave boys for this demonstration, where Socrates has said that learning is actually recollection. That, in a certain sense, the soul already knows everything, and that you don't get taught by something being pushed into your soul from outside, but that you have to elicit it. That learning is this recollection.

He demonstrates it with this slave boy, by going through a geometrical problem, which I'm not going to spoil by going through it, if you haven't seen it yet, but he shows that this boy, despite not having any knowledge of geometry—Meno didn't have his slaves take geometry classes—he found out an actually tricky geometrical demonstration. And Socrates demonstrates that by the time the boy comes to discover what the answer is, to figure things out, that that boy's knowledge that he's right, his *ability to have the conviction in the rightness of his thought*, couldn't have come from outside. That didn't come from somebody, your teacher, saying, "Yes, and that is how you think." And everyone saying, "Oh, good, that's the authority."

Socrates says, no, the authority's from *within*; your soul has an ability to know what's right and you have to elicit it, you have to cause it to be recollected.

Cusa: Learned Ignorance

This was taken further by Nicholas of Cusa, who created the Renaissance. He brought back this method of Plato and Socrates. And what he did was look at how it is that we elicit these higher concepts. He distinguishes between perceptions; there's a language of perception, there's a world of perception, there are statements about perception, but none of them are about *why* anything happens. That above perceptions, there are reasons. And that it's only by the contradictions in our perceptions, that we come to know the reasons—not by the repetition of our perceptions, allowing us to make an induction about what other perceptions we might have, which is what Aristotle said.

So, Cusa says in his *De Docta Ignorantia:* "It is not the case that by means of a likeness, a finite intellect can precisely obtain the truth about things. For truth is not something more or something less, but is something indivisible." You don't get close to the truth in a more or less way, it's its own thing. "Whatever is not truth, can not measure truth precisely. Hence the intellect, which is not truth, never comprehends truth so precisely that truth can not be comprehended infinitely more precisely."

In another of his works, *De Beryllo*, which means *On Beryl*, which is what's used to make eyeglasses, so it's sometimes translated as "On Intellectual Eyeglasses," here's what Cusa has to say about the relation between perception and knowledge:

"Therefore, the diversity of perceptible objects is proportional to the power of the cognitive nature in the human senses, which partake of the light-of-reason that is united to them. For perceptible objects are the senses books; in these books the intention of the Divine Intellect is described in perceptible figures. And the intention is the manifestation of God the Creator. Therefore, if regarding any given thing you are puzzled as to why it is such and such or why it exists in the way it does, there is an answer: namely, because the Divine Intellect willed to manifest itself to the perceptual cognition in order to be known perceptibly."

How can the Divine Intellect be known perceptibly? How can you describe something that's indescribable, using a language that's not adequate to describe it? How do you go about trying to do that? Cusa tells us:

"For instance, why is there in the perceptible world so much contrariety? You are to reply: 'because opposites juxtaposed to each other are more elucidating, and because there is a single knowledge of both.' Knowledge in terms of the senses is so weak that without contrariety the senses could not apprehend differences. Therefore, each of the senses desires contrary objects, in order better to discern."

This leads to the final point on this, which is about LaRouche's concept of metaphor: that we evoke knowl-

edge in others, we cause this kind of learning, we do this kind of communication and this kind of discovery, by contradictions. Aristotle said that one of the bases of reason is that A and not-A cannot both be true; but they can. I used the example earlier of a circle that seems to have an infinite number of sides, like a polygon of an infinite number of sides, and also seems to have no sides. That lets you know that trying to use that sort of language is inadequate. Our understanding of quantum phenomena is inadequate, a particle and a wave are contradictory phenomena. You can't put them together: *They give rise to contradictory expectations*. That means that the language we're using is below what's necessary; it means we've got a discovery still to make.

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Richard Dawkins (right) believes that man is an animal; that it would be immoral to give birth to a child with Down Syndrome, but that cloning humans is fine.

This is what Kepler did, when he took the vicarious hypothesis, just like Socrates does in his dialogues; Kepler used it in his astronomical work, to show all the other astronomers that they had to listen to him. To shake them up, he took their mathematical approach, their geometrical approach, and showed that it gave two contradictory indications for a certain astronomical distance, the distance of the center of Mars' orbit, from the Sun. He showed that two equally valid ways of trying to determine that distance, supposedly equally valid, gave different distances. He said, well, if our understanding was right, then we wouldn't be getting these two different distances. I think what Cusa said here is, "Whatever is not truth cannot measure truth precisely."

So, Kepler used that to say, we need to move to a higher level, we need to look at a physical cause of the motion of the planets. That's the whole way that we do things.

Now Cusa goes a little further than Plato on this, in emphasizing the role of mankind as a creator, and this goes back to Prometheus. The soul's recollection, as a metaphor, as a way to describe that our minds aren't blank slates, like Aristotle thought, that there's a disposition to thought in our mind, that the ideas certainly don't come from without; they don't come through our senses; they don't come from things that we get from the outside world: They're created within the mind. That's definitely true.

The Antithesis: Richard Dawkins

Now, what does that mean about the practice of science? I have a quote from an awful person on this, Richard Dawkins, who wants to kill all fetuses with Down Syndrome—or he doesn't really want to, it's up to you, he'd just hate to make a decision for you, but if it was up to him it would be immoral to give birth to a child with Down Syndrome.

This is from a 1997 article that he coauthored on why cloning humans is just fine. He says: "As far as the scientific enterprise can determine, *Homo sapiens* is a member of the animal kingdom. Human capabilities appear to differ in degree, not in kind, from those found among the higher animals. Humankind's rich repertoire of thoughts, feelings, aspirations, and hopes seems to arise from electrochemical brain processes, not from an immaterial soul that operates in ways no instrument can discover."

Now, it's just irresponsible and kind of shameless for any scientist after Gödel to make any statement like this—that the functioning of the mind, which operates in a way that creates new language, creates metaphors, and goes beyond any logical system, that the characteristic of the mind, can be explained in terms of

processes which are presumed to be understood in terms of rules that are logical systems. I mean, since Gödel, you've got no shame if you try to claim anything silly about the mind being only a combination of chemicals.

So in terms of where this takes us, in terms of where we are in history right now, the need for a revival of the Promethean outlook, take the case of morality. Many people look at morality in terms of a list of do's and don't. We've got a famous list of ten of them, for example; we've also got affirmative ones, "Treat others as you would like to be treated," "Don't cut in line," etc. But true morality requires that you put your life in the broadest context: that we're all actors on the stage of history; that there's no special gene that Abraham Lincoln had, or something like this. Historical individuals take on an historical identity and choose to look at themselves, and locate themselves on that level: In that case, morality requires not finding that list and adhering to it, *it requires writing new rules to that list*. Morality can require doing things you're not capable of doing.

Right now, history is demanding that a great number of us do things that we're actually not capable of doing. So we can measure this morality. As I said earlier, Lyndon LaRouche uses potential relative population density as a good measure of that. That a society that's not increasing in that way will fail to exist, for physical-economic reasons, and for cultural reasons; that that humanity of ours is being rejected.

Promethean Freedom

I want to end with a provocation on this, about freedom. That we get different kinds of freedom. People might think of "freedom *from*…" "You can't tell me not to do X; you can't tell me I have to do Y; I'm free from you!" You know Franklin Roosevelt's "Four Freedoms," the "freedom to…"—well, he also had "freedom from…": "Freedom from Want, Freedom from Fear." What about the freedom *to* live a happy and productive life? What about the freedom to be able to make it in the world? What about the freedom to be healthy? What about the freedom to live a long time? What about the freedom from error? What about the freedom from living in an arbitrary way? What about the freedom from uselessness? What about the freedom from the fear that your life might not have meant anything?

How about being free from oligarchy?

So, the last thing I wanted to say was that, what seems like a contradiction between science and culture but really is an important thing, which I don't know how much we're going to get into today, but, in science, it's indubitable that there is a metric outside of what we feel like thinking. You do experiments—is what you're trying to make happen, does it happen or does it not? Okay, maybe you can figure out if you're right or wrong, by testing things out. Are those things that we discover, created by us, or are they already there?

Another question would be about the practice of science: Are we creating that, or is that already there? Was the process of discoveries as they've come about, was that necessary? Or was that free, was that created by us?

Then in music, we definitely create new things, but there's been an attempt to destroy culture altogether and remove what Beethoven expressed very simply in his instructions in his *Grosse Fuge*, his *Great Fugue*, he wrote for the instructions, "*So streng, wie frei*"—"As rigorous as it is free."

So there is a freedom in holding yourself to lawful standards. There is a freedom in recognizing that culture isn't arbitrary. That's a very *liberating* realization to make. Music is not just what people happen to like, or not, but there are laws to what works in music, and to what form culture ought to take. And that's a real freedom; that's Promethean freedom. Not the freedom to do whatever you want, but the freedom to improve, to be "as rigorous as you are free" and it's a real blessing that we have to be able to look back to that culture, claim that as our own, and to move forward with it.

Megan Beets: Yes, I think it's a crucial point that what you're really getting at, is that, you said at the beginning of your presentation, we're facing the potential to create the greatest renaissance in human history, and that is inherently Promethean, as are all renaissances. And it really does point to the unique capability, the unique powers of the human species in the universe. I was provoked by what you went through, and I was thinking, as you went through your presentation, about the relationship of music and culture to all of this. Because what you're really describing is a process of *mind per se*. Not of the senses, not of the biological characteristics of humans as a certain species on planet Earth, but that, what you've identified, is that there is a process of *mind per se*, and of *creativity per se*, which is beyond all of this.

What's the relationship of that to what's been developed in the human species as a musical culture, or a

culture of Classical composition? And I was thinking about the horrible culture today, where the idea is that music is just sound, and it's "my preference," I like this set of sounds, I don't like this set of sounds, you like that, I like this, and so forth. But that is a totally degraded idea of culture.

And if you go back to a better time in human history—take for example the tradition of music coming out of the Renaissance, of Bach through Brahms—and you take that tradition and then, as that continued into the great conductor Furtwängler, you had an absolute commitment to the idea of the progress of the human mind's capacity to apprehend concepts which are indescribable, as you said earlier. That the development of the human mind's power to apprehend these profound, unspoken concepts, and then to be able to express those in a language that other people can participate in—and I think that's the key thing: The power of poetry and the power of music is the development of this capacity to apprehend something which has never been apprehended before, express it, and allow others to participate in that process of creativity itself.

And that's music. Nothing outside of that is music, and there was a sense of the tradition from Bach through Brahms, and then into Furtwängler, of actual progress in that, that music is a real power being expressed by mankind, and we were coming to a higher and higher, more developed form of that. And that really is the standard that subsumes it all, and I think you expressed it well, that if people talk about science versus culture or something like that—there really is no separation. But you are talking about the highest development of this capacity of the mind.

Ross: Yes, and are you trying to go somewhere with it? Sometimes it's tougher with music that doesn't have words. A play where people are saying things—that's I think a little more approachable sometimes: I thought of a couple of Schiller examples of ennobling—like the actual stories of *William Tell*, for example, or his *Maid of Orleans* on Joan of Arc. Or his poem "Sehnsucht," set to music by Schubert. To sing that song, requires a challenge to be able to actually convey that honestly. You have to become somebody that you're probably not, just coming into that song, to be able to really convey it, to actually say that, and do it right musically, to really get it across.

It's not that challenging, ennobling, or uplifting, to sing some song about how you been dumped and you're mad about it, or you know, you enjoy Summertime or, I don't know, you're mad at somebody and you want to shoot them. That doesn't require a lot; that doesn't require you've got to really get into it, to be ready for this performance, because you're not sure if you're "up" to representing that character, representing that person to the audience. "Is that really me? Can I really represent that? I don't know if I'm that good of a person." You don't have that trouble when you're singing about trite, everyday things.

There are people who *try* to create culture and improve it. And we've got these people who acted deliberately to uplift people with it, with a higher concept of music and of humanity; so people like Bach, like Mozart, like Beethoven, like Schiller, like Shelley, like Keats—these are people who *had an intention!* They weren't just making music for sounds, they had goals. Mozart was a political guy, for example! He wasn't the only one among those; obviously, Schiller, they all were, to varying degrees, based on the times they were in. But culture should be part of your whole culture: Where are we trying to take mankind? Where are we trying to go? How are we trying to improve ourselves in our society? And we've got poets and musicians and playwrights, they can play a very powerful role in that, in improving and ennobling our self-identities.

And it's not that it's just a bad job that's being done right now, for the most part—I don't think that's the conception or intention of a typical musician.

Freedom, Again

Deniston: This point you made about freedom, I think could be drawn out, just from the example you gave in the beginning. You know, freedom being tied to human creative development, being the essence of what you're dealing with, and these examples you gave, and drawing out the language, I think is really helpful, too. You're talking about the whole domain of physical activity, the whole physical platform, and how the moving to a chemical domain required completely new *discoveries*, and a completely new language culture to go along with that. But it also gave new freedoms, that didn't exist, in the lower domain.

When you're talking about real freedom, you have now completely new domains of action that you're free to take, which you couldn't access before. Now that's freedom, and there's a culture that goes along with, as

"The power of poetry and the power of music is the development of this capacity to apprehend something which has never been apprehended before, express it, and allow others to participate in that process of creativity itself," said Megan Beets (center). Left to right: Jason Ross, Beets, and Ben Deniston.

you're saying, that develops those capabilities, that allows society to be able to do those types of actions, to take those new steps into areas that give you fundamentally new, entire domains of what you call freedom, or potentials for action.

Ross: Like freedom from polio, like freedom from smallpox. You know, those are even better freedoms than—I don't know, some other freedoms you might be thinking about.

Beets: Yes, but I think the Beethoven quote that you raised is very appropriate: "As rigorous as it is free." And I think this does bring out something which we should develop more in the future, which is this unique, seeming paradox of the total freedom of the human mind, and you think of the action of the creative artist, the action of the mind of the creative artist: It's completely new, it's an original action and creation in process of that human individual. And, *yet*, there's the recognition, and the best artists had that recognition, that those processes of the mind were themselves, somehow, part of the lawfulness of the universe.

And I think the exploration of that really will take us to exploring what you brought up: How does man move to do those things which have never been done before? How does man move to achieve something which was unthinkable before, impossible before? Well, the mind has to be able to operate and somehow has to have the power to think, that which it couldn't have thought before, which means you're really going beyond language, you're going beyond what can be expressed now.

I was thinking about Percy Shelley; that was the basis of his essay, "A Defense of Poetry," the recognition that the mind is reflective of the lawfulness of the universe, and that the most powerful poets could take that and actually turn it into language. And that, I think, really does get at the crux of that, that's something we have to develop.

Ross: Yes, that is a very free moment, that creative mind-state. First off, that's when people are really most themselves, because you're creating yourself, as you're doing that—that's you, you're making yourself. This isn't something you got from the neighborhood you grew up in, middle school, and the TV shows you happened to see, etc., etc., etc. That's you being able to really be—that's what's most *you*.

And on this issue of truthfulness, you know, music itself, musical statements, It's just, again, it's so much easier when there are words, like somebody writing some poem about how people are a pox on the Earth and we need to take better care of Gaia, and whatever. You know, I don't care if it rhymes nicely, and their use of alliteration is just divine—what they're saying is wrong!

That's the other thing: Is what you're saying actually right? Now that gets harder to recognize sometimes, if you don't get into it in music, that there are musical ideas, there are musical statements. Like when Stravinsky says something, he's not using words, he's speaking with some violins, or whatever, and some drums in the *Rite of Spring*—he's saying something, and he's completely wrong! He sounds like an idiot! He sounds like an *insane* idiot! It's like listening to a crazy person ramble on, and people sitting in their seats listening to that. You wouldn't do that, if somebody were *saying* something that was actually, patently absurd.

(Actually, people do that all the time, they listen to speakers saying stupid things.) But it's like that, musically, too. Even when there aren't words, you can still be saying something stupid, or you can be saying something just like that ennobling Schiller poem, set by Schubert, you have to become somebody to perform that, the same challenge exists in music that doesn't have words.

Beets: Well, you see it, and Stravinsky said that explicitly, because he said, "I have no use for musical development," development being an actual unfolding of a musical idea, and the taking of the mind through a certain process of thought, Stravinsky himself said, "I have no use for development." And so what was he left with? The senses. Sensual impressions.

So yes, it just goes there. There is this distinction, and there is a right, human, lawful mode of culture, and there's a lawful mode of art. And that really is the source of all human progress.

Ross: Yes! And anybody watching, this might shock you. "Aw! That's fascist! You can't say music is good or bad," or whatever. Just *listen* to it. You might pretend some people like some things and some don't, but pull up Stravinsky's "Sacred Dance" from the *Rite of Spring*—I just think it's hilarious, I just start laughing. But I don't want to prejudice you, dear viewer. But take the "Sacred Dance" from the *Rite of Spring*, and compare it with the second movement of Beethoven's Seventh Symphony. There's a Furtwängler conducting of that on YouTube [https://www.youtube.com/watch?v=6kNw9faABzk]. Actually listen to those, and I think you'll find it's completely clear what the distinction is. I think you'd actually have to *try* not to get it.

Deniston: Anything else? This is quite an array you gave us here. This is very exciting.

Ross: That's it for now.

Deniston: Yes. I think there's plenty to fill out and continue. I think just to close: You had opened with the reference that people create wealth, and this is the creation of wealth, what you're going through here, this focus on the human mind, culture, the ability of the mind to generate new things: That is the source of wealth and that has to be what governs this whole new era we're going into now.

Deniston: Excellent: Thank you for joining us, and we'll be here next week with more.

Will the United States Join The Helium-3 Fusion Revolution?

The University of Wisconsin Fusion Technology Institute, founded in 1971, has been a leader in fusion and plasma physics research, with a broad range of basic science, engineering, and applications programs. The Institute has done pioneering experimental work using advanced helium-3 fuel to produce fusion energy. Dr. Kulcinski is the Director of the Institute, Associate Dean for Research in the College of Engineering, and Grainger Professor of Nuclear Engineering. He has led a scientific team which has doggedly pursued, and tirelessly promoted, research into the advanced fusion fuels, such as helium-3, which will create the energy for the future.

Dr. Kulcinski joined the University of Wisconsin Nuclear Engineering Department in 1972, having worked in the Nuclear Rocket Program at Los Alamos National Laboratory a decade before. He has participated in government advisory committees, and is a member of the National Academy of Engineering. He was interviewed by Technology Editor Marsha Freeman, on Aug. 21.

EIR: Recently, there have been some very exciting international developments. The Chinese lunar program, most recently the successful landing of the Chang'e-3 lander and rover on the Moon, generated excitement and media coverage around the world. Leaders of the Chinese space program have described the goal of mining helium-3 from the lunar surface, to use as an advanced fuel for fusion energy, as the long-term goal of their exploration program. Although China has now taken the lead in planning to carry out this project, the Fusion Technology Institute has carried out research on advanced fusion fuels using helium-3 for many years, and has even developed designs for machines to mine it on the Moon. But due to the virtual absence of federal support, that work has been stymied since the 1980s.

Support for long-term projects is now on the international horizon. The July summit of the BRICS nations held in Brazil, in which China plays a leading role, laid the basis for the investment of the world's resources to accomplish long-range goals, which could include helium-3-driven fusion energy.

But almost all of the fusion research ongoing today is based on using deuterium-tritium (D-T) fuel, not helium, because it is the easiest fusion reaction to obtain. How did your Institute become involved, quite early on, in pursuing a different approach to fusion research, based on using helium-3?

Dr. Gerald Kulcinski: You're correct. The technology part of our program started in the early 1970s, whereas the total fusion effort here actually started in 1963, with Don Kerst. He had been at the Betatron [particle accelerator at the University of Illinois] and came to Wisconsin to set up a fusion program in 1963. It was mainly plasma physics. It wasn't until the early 1970s that we started to think about the technology. At that time, it was essentially all deuterium-tritium fuel.

In the middle of the 1980s, you remember the SDI [Strategic Defense Initiative] program, that President Reagan had proposed. They were talking about trying to develop power supplies that would run for 30 minutes with 100 or more megawatts electric, in order to power the defensive weapons. We had a contract with the Air Force to develop a pulsed fusion system, to run on a 30-minute time scale, not pulsed for a few seconds; around 300 MW for 30 minutes. We began to think about how you would design a reactor like that, for use in space, and we started to realize that the real problem was the neutrons, because if you had a D-T system you would have to put up so much shielding that the mass of the system would be too large, and it wouldn't be practical.

So we started to look at fuel cycles at that time that

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The Fusion Technology Institute's Inertial Electromagnetic Confinement experiment uses electrical fields to create fusion reactions, unlike a tokamak, which contains the plasma with magnetic fields. Here, Dr. Gerald Kulcinski holds the spherical grid used to accelerate the ions to fuse, which is placed inside the reactor.

produced little or no neutrons. Then we started to think that if you didn't have the neutrons, not only would you not have the shielding, but you could get rid of a lot of the other components. Even if you didn't have zero neutrons, if you went to the D-He-3 system, which drops the neutron production by, on the order of, a factor of 50 from a D-T system, and they're all lower-energy neutrons. You could allow the neutrons to escape, and didn't have to have the shielding. As a matter of fact, you didn't want the shielding, due to the backscatter from the neutrons. So we began to look at these advanced fusion fuels for the SDI program.

We designed a reactor for the Air Force based on the D-He-3 system. It was a one-of-a-kind, or a couple-of-a-kind, but not a real commercial power plant. That was limited, of course, because the amount of helium-3 was classified at that time, for lots of reasons. But anyone can calculate on the back of an envelope, how much was available, and we knew there was enough helium-3 in the United States alone to power these kinds of systems for this short engagement.

After that, in the mid-1980s, we decided, "Well this looks pretty good, but why don't we try to look at how we would provide such a system for Earth and electrical power plants?" Of course, the first thing that you run into is that there isn't much helium-3 around, just from the decay of tritium in nuclear weapons. It all comes from reprocessing the weapons when they bring them in from the field. So we started to look around. We knew the advantages of using helium. That wasn't any secret. The real problem was, where are we going to find large amounts of helium-3 that could satisfy commercial electrical production systems?

In late 1985, I took the fusion technology group on a retreat, around Christmastime. Classes were out, and we wanted to figure out how to get larger amounts of helium-3. We went off campus and spent at least a week, maybe a little more, coming up with all kinds of crazy ideas, none of which seemed to work. Until two of our scientists, almost simultaneously, came up with the idea that there is a source of helium-3 in the Solar System, from the Sun. Helium-3 is a component of the solar wind, and there are a lot of bodies up in the sky that might have collected the helium-3. But the problem is that the solar wind, being [electrically] charged, is deflected by any body that has a magnetic field.

If you look at the closest planet to the Sun, Mercury, it has a magnetic field, so it didn't collect any. Venus has no magnetic field, but it has a hell of an atmosphere! It couldn't collect any. We've got both on Earth, so we didn't collect any. So you could march through the Solar System and you'd come back, and you'd say, "There is a body that is close to the Sun, and that's our own Moon." It has neither a magnetic field nor an atmosphere, and, in theory, it should have been collecting the solar wind for 4.5 billion years or so, depending upon what the age of the Moon is. If that was the case, using the composition of the solar wind as we know it today—and probably it was different then, but that's the only one we know—we calculated that 500 million metric tons should have hit the Moon before that time period. Then, the question was, is there any of it up there still?

So right after New Year's in 1986, we went down to

the Lunar and Planetary Institute in Houston, and started to go through all of the records of the Apollo program. Every rock that was analyzed had helium-3 in it. We kept finding this, but we weren't quite sure we were reading it correctly, so we literally walked down the street to the [NASA] Johnson Space Center, talked to some of the lunar geologists, and said, "Here's what we've been finding. Is this correct?" And they said, "Yes." They knew where the helium-3 was, but they didn't know what it was good for. We knew what it was good for, but we didn't know where it was. That was in 1986. We did not discover, but we rediscovered, the large amount of helium-3 on the Moon. So that started another program at Wisconsin, which was to retrieve the helium-3. We had several NASA projects, where we designed miners that could extract the helium-3 which is very shallow, buried in the regolith. And then Harrison Schmitt, who was an Apollo astronaut, joined our team.

Harrison Schmitt Joins the Team

EIR: When did Harrison Schmitt come on board?

Kulcinski: This is a rather interesting twist. I was at a meeting in Albuquerque at which he was the dinner speaker. Jack [Schmitt] is a very good speaker, and he gave an inspiring talk about Apollo 17, and space travel, and the Moon, and so forth. And after the talk, when people gathered around to talk to the speaker, I had a couple of seconds to describe this to Jack, and he got very, very interested, and he contacted us after that. One thing led to another and we started to collaborate after that speech [Schmitt became a consultant to the Fusion Technology Insitute in 1986—ed.]. We published an article in *Fusion Technology* at that time, and that was the kick-off for all of this work.

Jack, of course, brought an enormous amount of knowledge to the team, about the lunar surface and the regolith, and the fact that they had actually taken samples about two meters into the lunar surface and found helium-3 all the way down to about two meters or so. It's probably deeper than that in the regolith. That then gave us an idea of how we could actually mine the helium-3. We designed several miners which went through NASA review. The bottom line was, the folks from NASA said, "Fine. We can get the helium-3 if you need it, but you're never going to make fusion work." Well, if you went down the street and talked to the Department of Energy folks, at that time, they'd say "That's fine. We can make fusion work, but you're never going to go back to the Moon." We could not get NASA and DOE together to work on this project, which was no end of frustration for us. Both thought they could do their part, but the other agency wouldn't be able to do it. That's what we've been up against for the last 30 years, trying to get NASA and DOE to work together on this.

Advanced Fuel Cycles

EIR: You then developed an experimental approach and an apparatus optimized to be able to use this advanced helium-3 fusion fuel?

Kulcinski: Later on, we got into this area of inertial electrostatic confinement [IEC] devices, to actually show fusion with an advanced fuel. D-He-3 has to be heated up to about 60 kilovolts, which is on the order of three times higher than a D-T system [which requires a temperature of at least 100 million degrees].

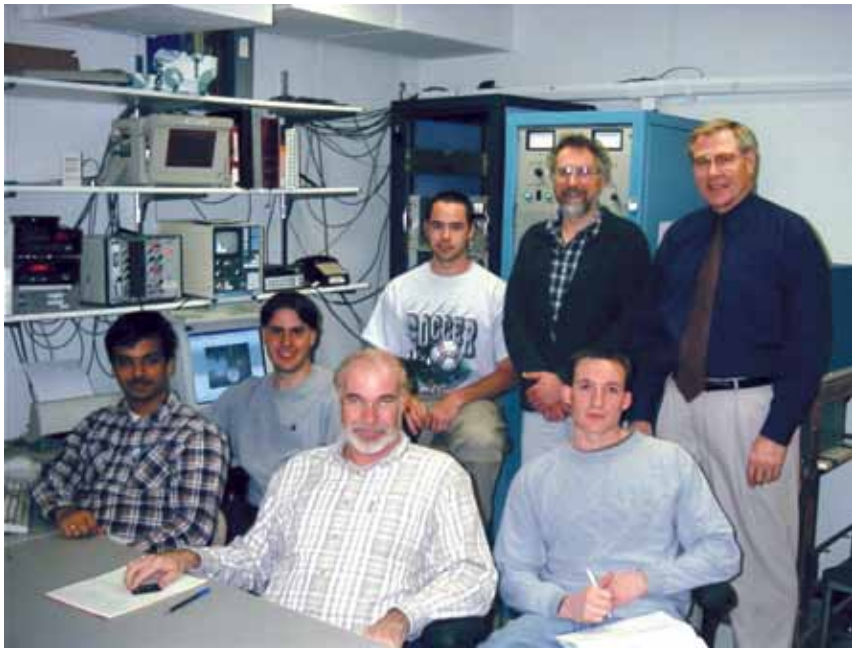
We looked at two advanced fuel cycles. If you also look at the helium-3/helium-3 cycle, that is one that has *no* residual radioactivity associated with it—there is some radioactivity when you have the nuclear reaction, gamma rays, but they're easy to shield and they don't cause radioactivity to be induced in the structures, whereas, neutrons do.

So we looked at those two fuel cycles, D-He-3 and He-3/He-3, and said we had to find some confinement concept that has better operational efficiency and high energies compared to a tokamak, or anything that's a Maxwellian distribution, where you have ions with a [wide] range [of energy distribution]. That's how we got in to the inertial electrostatic confinement area. That research all started with Philo Farnsworth, who invented television, and Bob Hirsch, who did the initial experiments, way back in the 1960s. But the research dropped off because they didn't know about helium-3 at that time.

So we have been pursuing both arms of this: one, the extraction of the helium-3 from the Moon, which is an engineering issue, not a physics issue. It looks like that could be done. The harder part, is to demonstrate being able to burn helium-3 with anything close to a breakeven number, and that's where we've been concentrating most of our efforts. We have actually run D-He-3 routinely in the laboratory, and we've also run He-3/He-3 systems, but we're a very, very long way from a q=1 [energy breakeven]. It's only a small university program, so it's not surprising that we're not at any high level.

In the 1990s, we did a little twist, because we realized that fusion power plants seemed to be a long way in the future, and slipping further. We asked ourselves, how could you have an impact with fusion in the next five to ten years? If you didn't make electricity, what would you use fusion for? We got into this whole area of using fusion to make near-term products that could benefit society, while you learn about the physics, and scale up larger and larger, to eventually have a power plant. That has also been a very major part of our program now.

These near-term projects are making isotopes for medical diagnostics, or using these small portable systems for detecting nuclear weapons, explosives, IEDs, and a few other commercial products that we're working on now that have very near-term applications, within five years of commercialization. These systems won't be making electricity, but some will be using helium-3 to make products.



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Since 1971, the Fusion Technology Institute has graduated 164 Ph.D. candidates, creating the next generation of fusion scientists. In this 2000 photo of the first group of students and staff studying advanced fusion fuels are (back row, l. to r.): Dr. Greg Peifer, Shine Medical Technologies, Prof. John Santarius, and Prof. Kulcinski.

For example, two of my graduate students started a company called Shine Medical Technologies. There was a big problem with molybdenum-99, which is used for diagnosing cancer and other medical procedures, when the Canadian nuclear reactors producing it went down. These students came up with the idea of using fusion neutrons to drive a fission reactor, to produce the radioisotope. They are building eight fusion-driven fission systems which will produce half of the U.S. need for moly-99.

Other Fusion Applications

EIR: Are there other fusion experiments being carried out using helium-3?

Kulcinski: I wish there were. I know the Japanese have done some. We have a collaboration with Japan that is a university-to-university collaboration, not government-to-government collaboration. I know the Japanese work with the same IEC devices that we do, and they have watched our experiments and duplicated some of them in Japan. I expect the Chinese are doing this, but we don't know, we don't have any inside information on that. I don't know of any in Europe, or in Russia.

There have been a few places in the United States, for example, at the University Illinois, by George Miley, who has worked on these systems. There was a system at Los Alamos National Laboratory; there was one at Idaho National Laboratory; one at NASA's Marshall Space Flight Center; there's one now at the University of Maryland. There are some small efforts, people looking mainly into the physics of what is going on. The nice thing is that they're small, they're cheap, so students can really get a lot of effort out of them, as opposed to being part of an army working on a big tokamak. . . .

EIR: As long ago as 1987, I talked with John Santarius in your Institute about using polarized fusion fuel. What advantage would that have for fusion? What has been the development since then?

Kulcinski: The advantage is that you increase the reaction rate for the same temperature of the ions. Polarized fuel has been demonstrated in some experients, to have a higher fusion rate at any given temperature. That all has to be proven, to show that you can do that. I think the idea is sound. We discuss it. It hasn't gone away.

If you're asking have we done anything with it, the

answer unfortunately, is "No," but it comes up every once in a while. We just don't have the facilities to be able to do the experiments. John's ideas, I think, are sound, but we don't have the resources.

EIR: John Santarius also mentioned fusion applied to space propulsion.

Kulcinski: John is working on electrostatic devices for space propulsion, which I think may be closer. You can get extremely high specific impulse units, a million seconds of specific impulse, in contrast to chemical rockets, which are 400 seconds, or nuclear rockets, which may be 800 seconds. These are a million seconds of specific impulse, which allow you to go to a star and back without having to breed people [i.e., to wait through the lifespans of many generations of people].

EIR: And for manned missions farther away than the Moon, fusion propulsion is a prerequisite. Almost every day there are reports of yet more deleterious effects on astronauts from the long-term exposure to microgravity.

Kulcinski: I think the physics are sound, and that it's a demonstration issue. We can get to Mars and back in less time than it would take to [just] get you to Mars with chemical rockets. That, the astronauts would be very much interested in. But you have to have the resources to demonstrate that and show how it would work. We're certainly not going to do that at a university, in terms of building something that large. That's a program for NASA or a federal agency. A big company could do that—like Boeing or Lockheed.

Mapping Helium-3 on the Moon

EIR: In 1993, your group published a fascinating paper on "Remote Sensing of Astrofuel." It was a proposal for a lunar orbital mission using gamma ray spectroscopy to map out the concentration of helium-3 on the Moon. The only definitive data we have are from the Apollo and Soviet Luna samples that were returned to Earth. Helium-3 is very dispersed, only a few parts per billion in the lunar soil, and is not something you can measure using the tools and instruments that we have either orbiting the Moon now, or roving on the surface. What was the design of this proposed mission?

Kulcinski: I think it is still a valid idea, because there is a neutron background on the Moon, from the cosmic rays hitting the surface, a small flux of neutrons on the surface of the Moon. The whole Moon is covered with neutrons that are being generated there, on a very low level, not damaging to humans. But those neutrons are moving around, interacting with the lunar soil, and with any helium-3 embedded in the soil. And those reactions, which emit 10 MeV gamma rays—which is the key to this—would stand out from all the other gamma rays that are emitted on the Moon.

So what you need is a detector to detect 10 MeV gammas. If you have an orbiting system that could detect 10 or 20 MeV gammas, in that range, then you would be able to light up the areas where the concentrations are higher than other areas. I think that is still a valid idea. The problem was that the detectors for that energy gamma are not things that are in the open literature. So we sort of left that, because we were not doing classified work here. We don't do classified work on campus.

EIR: Maybe you should suggest to the Chinese that they should do the mission.

Kulcinski: They wouldn't classify it. They would just do it!

I've got to believe, as you indicated, with their strong fusion program, their strong need for power in the future, and their strong interest in space, that helium-3 would be one of the things that they're doing, but I haven't seen anything that I can really put my finger on and show that they are actually doing that.

EIR: Chinese space officials have been very forthright in stating that mining helium-3 on the Moon for fusion is a goal. So I think one would assume that they must also be looking at what the requirements are from the fusion side, to be able to use such advanced fuels. Although there is no government-approved manned lunar mission, it is stated by scientists and visionaries in their space program that manned missions, with the goal of living and working on the Moon, will follow the Chang'e series of robotic missions. With facilities for industrial production and mining, they would be well placed to be transporting helium-3 back to Earth.

Kulcinski: Now, they are following us, so they know it can be done. But once they get to the Moon and set up a base, then *they* will be in the front, and they will have to be more careful, because they will be venturing into technology that has not been demonstrated by the U.S. or the Russians. But they have a very impressive program.

By the way, their fusion program is also very impressive. I believe there will be a connection at some time.

Editorial

Get Obama Out of the Way

Lyndon LaRouche on Sept. 2 delivered a stark warning that the United States economy is collapsing, with a financial system bankrupt beyond repair. However, he added, there are clear corrective measures that can be taken, "if we can get control of the process and stall the collapse." But this remedy is political—remove President Obama from office without further delay, along with his protector John Boehner. Under Obama's tenure as President, the U.S. economy has been virtually wiped out. Today, the southwest region of the country is dead, facing a collapse of the entire water system. This will soon translate into mass starvation, unless emergency actions are taken—actions that Obama and Boehner have systematically blocked.

The depth of crisis is highlighted by the fact that the U.S. banking system is about to blow up altogether, on a scale far beyond that of the 2007-09 breakdown; and the American people's impoverishment has grown worse every year since 2007. It is not certain what day of the week the blowout will happen, or whether it will begin with the collapse of a major European or Wall Street bank. What is certain, however, is that the collapse is coming very soon.

LaRouche emphasized that recognizing this harsh reality is the first step toward managing the crisis so that it does not lead to total disintegration and death. This means that Boehner must go from the Speaker's chair; Obama must go from the White House. This is the number one matter for Congress to take up when they return on Sept. 8. Nothing short of Obama's removal can create the conditions by which the United States can avert total extermination of the economy.

LaRouche's message to the American people, delivered to colleagues on Sept. 2, was: "Obama is starving you to death, so you must remove him now. Then we can reorganize the finances of the nation to prevent a chaotic collapse." Actions can be taken right away to boost production in the United States, by launching vital infrastructure projects and other measures, so that the reality of the bankruptcy of the nation can be managed and a total collapse stalled while new policies are put in place to restore physical-economic real growth.

The key to the positive actions that must be taken, is for the United States to ally with the nations of the BRICS, led by China. China, Russia, India, Argentina, and Egypt—among others—are moving aggressively to assert an entirely new system, based upon the values of productive labor power, and scientific creativity per se. They are not about to be intimidated by the hapless Obama, whose every babbling is more stupid than the last.

Indeed, the world is laughing at the United States, while U.S. citizens sit stupefied and depressed, before a President who is steering the country inexorably toward destruction.

Yet, Americans could change this situation in the wink of an eye. Look at how Egypt turned around 180 degrees, after the removal of Mohamed Morsi, within a matter of months. China's stunning progress, since the period of the Cultural Revolution, has taken longer, as has Russia's, but the change is equally dramatic. The citizens of these nations have taken their countries back, and are forging a future for all mankind.

It's high time Americans joined them. And the first step is to get Obama out of office, and out of the way.