The Mont Pelerin Society quack-remedies peddled lately by fellows such as Senator Phil Gramm and Speaker Newt Gingrich, are not the cure; they are the disease, like the corrupting influence of famous American tories such as Albert Gallatin, or Andrew Jackson, Wall Street banker Martin van Buren, Franklin Pierce, treasonous President Buchanan, British spies Judah Benjamin and August Belmont, and, after Lincoln's murder, Andrew Johnson, Teddy Roosevelt, Woodrow Wilson, and Calvin Coolidge. Since 1763—and even earlier—there have been only two parties of principle in the United States, crossing all other nominal political-party lines: the patriotic party of Cotton Mather, Benjamin Franklin, Washington, Lincoln, and Franklin Delano Roosevelt, *versus* that tory tradition of Aaron Burr, the Massachusetts Lowells, and Benedict Arnold, which Americans in the Winston Churchill-loving tradition, such as Henry Kissinger, George Bush, Phil Gramm, Newt Gingrich, and the rabid "free trade" Democrats, typify today.

As documented in other locations, the characteristic of differences in way of thinking, which divides the patriots from the American tories, still today, is that the governing principles of the tories, are typified by the empiricist world-outlook specific to the kind of philosophical liberalism (and, also, fascism) associated with Thomas Hobbes and John Locke.[4] That point is underscored by the contrast between preambles of the respective constitutions of the U.S.A. and the pro-slavery Confederacy. The tories are followers of Locke; whereas, the ideas of the U.S.A.'s patriotic founders were

4. Cf. Anton Chaitkin, et al., "The Anti-Newtonian Roots of the American Revolution," ***EIR,*** Dec. 1, 1995 and "Leibniz, Gauss Shaped America's Science Successes," ***EIR,*** Feb. 9, 1996. On the subject of "characteristic differences," see Lyndon H. LaRouche, Jr., "How Hobbes' Mathematics Misshaped Modern History," ***Fidelio,*** Spring 1996.

Space program paid for itself many times over

In April 1976, Chase Econometrics, a consulting firm associated with Chase Bank, released a study which estimated that for every $1 spent in the U.S. space program, $14 was returned to the economy in new jobs, new factories, and increased productivity from new technologies. The study also found that dollars spent by NASA were four times as effective in boosting the economy compared to other R&D spending, and that the effects in the economy of technology that had been developed by NASA were visible within two years of application.

There is no other *legal* activity that can claim that rate of return on investment.

While no listing of individual technology developments could add up to the economic impact of the mission to land men on the Moon, a survey does present examples of how such investments transform economic activity for the economy as a whole.

Agriculture: Observing the Earth from space has given farmers a tool with which to evaluate the health of crops, by determining infestation of pests, water stress, efficiency of fertilizers, and other factors. Threats to crops can be determined months before they would be visible from the ground, and action taken in time to avoid large-scale loss of food.

Future applications of space technology in agriculture will include the use of automated and robotic systems being developed to grow food in Earth orbit and on other planets.

Medicine and health: Medical technologies that have benefitted from, or depended upon, NASA-funded research and development include fluid-flow studies for the artificial heart, miniaturized implantable insulin delivery systems for diabetics, remote monitoring of vital signs in intensive care units, rechargeable cardiac pacemakers, astronaut "cool suit" treatment for multiple sclerosis patients, implantable heart defibrillators, diagnostic tools and technologies, and thousands of other capabilities that have saved lives, improved the productivity of victims of many ailments, and helped prevent disease.

Energy: Many ideas for quantitative and qualitative improvements in energy technologies were initiated to enable the production of electricity under the constraints imposed by space flight and the space environment. They were under development to enable the colonization of the Moon, and travel to and development of Mars. Quantitative improvements included the development of compact, high-temperature nuclear fuel arrays for second-generation nuclear fission power plants. Qualitative breakthroughs centered around direct conversion techniques, such as applications of magnetohydrodynamics, and new energy production methods, notably, nuclear fusion.

Manufacturing: Industrial processes of every type have been pushed ahead through the use of new materials, computer control, non-destructive testing techniques, quality control methods, and thousands of individual innovations that were required in order to manufacture spacecraft that could withstand the space environment, and support both men and machines. Nastran, a computer software package, was developed at the NASA Goddard Space

shaped by the explicitly anti-Locke influence of Gottfried Leibniz in physical science, in philosophy, in political morality, and in principles of political economy. Treasury Secretary Hamilton's famous, December 1791 Report to the U.S. Congress, ***On The Subject of Manufactures,*** illustrates the governing influence of Leibniz's economic science upon the American System of political-economy.

Putting to one side the expenditure for administrative and regulatory functions of the Federal government: Under the American System of political-economy, the dividing line between government's role in the economy, and that of the private entrepreneur, is essentially threefold: the government is responsible for the economy of national defense, the maintenance and development of basic economic infrastructure, and the promotion of progress and investment in advances in science and technology. In each case, the responsibility undertaken by, and assigned to government addresses a primary need of the economy which the sum-total of private entrepreneurs could not fulfill competently without government's own special and natural role in the economy of any civilized modern nation.

The responsibilities of government for infrastructure, include, presently, national and regional water management and related programs of general sanitation, public transportation, the organization of large-scale power grids, general urban infrastructure. This also includes governmental responsibility, at the variously appropriate levels of national, state, and local government, for a quality of universal education essential to the development of a qualified citizenry, and for the fostering of generalized increase of the productive powers of labor through investment in scientific and technological progress. It requires governmental responsibility, similarly, for ensuring the existence of adequate health-care delivery systems to all of the citizenry. It includes programs of scientific and technological progress which must be undertaken on a scale beyond the reasonable scope of the private entrepreneurs, as the Manhattan Project, the post-Sputnik program of National Science Foundation educational grants, and the Manned Moon-Landing program of the 1960s, typify this distinction.

2. The lesson of the Soviet Union as an infrastructure desert

Go back to the second half of the 1960s. Compare three sets of national economies: A) The leading industrialized nations, typified by Japan, West Germany, and the United States; B) The Soviet bloc of nations (Eastern Europe and the Soviet Union); C) China and India as typical of greatly underdeveloped nations. Use maps of infrastructural features (rails, highways, inland waterways, and power grids) as aids in comparing the conditions in Japan and in Europe to the west of Berlin, with the development of infrastructure in continental Eurasia to the east and southwest of Berlin. Recognize, that during the second half of the 1960s, the general level of technology of production employed, and productivity, in Japan, the Federal Republic of Germany, and the U.S.A. were nearly equal, but that those three economies differed greatly in their respective population-densities per square kilometer of usable land-area. The characteristic of the three latter, developed economies, is the approximate functional correlation between population-density and density of infastructure development.

By contrast with those three developed economies, the Soviet Union fell far short of being competitive, by virtue of lack of adequate development of basic economic infrastructure. On the same premise, China and India were economic disasters.

The principle involved, is, summarily, as follows.

The most characteristic distinction, which sets the human race absolutely apart from, and above all other forms of life,

Flight Center during 1965-70, to analyze the behavior of elastic structures. In 1970, it was released for public use, and it was employed in aircraft and automobile manufacture, bridge construction, and power-plant modeling studies.

Transportation: The most significant increase in productivity in traditional transport systems, such as rail, since World War II, came from the application of computers. A dispatching and control system, originally developed by TRW for the Apollo guidance system, was adapted for ground transport, and used in the rail industry. Highly innovative transport technologies, from magnetically levitated vehicles to sub-orbital electromagnetic mass drivers, have benefitted from various space technologies, and will be deployed on a large scale on the Moon and Mars.

Scientists and engineers: During the 1960s, NASA provided the resources for thousands of college- and graduate-level students to pursue studies in science and engineering. Grants went to educational institutions to upgrade facilities, to faculty to support their research, and to students to encourage them to study the sciences. The peak year for NASA funding was 1965. The peak year for doctorates granted in the physical sciences (approximately 4,500) and in engineering (approximately 3,500), was in 1971, not because NASA paid for all of these degrees, but because there was great interest in joining in the space enterprise. At the start of the space program in 1960, the United States was graduating fewer than 2,000 Ph.D.s in the physical sciences. The number increased as NASA funding increased, and then declined, as NASA funding declined, with about a five-year lag time.

—Marsha Freeman