

The New Gold Rush

Joseph N. Pelton

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The Riches of Space Beckon!



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This book is dedicated to all of the young people who aspire to be involved in the gold rush in the skies, who are now studying outer space around the world. These include students at the International Space University of Strasbourg, France, the McGill University Centre for Research in Air and Space Law in Montreal, Canada, the Leuven Centre for Global Space Governance in Belgium, the Space Policy Institute at George Washington University, the University of Capetown in South Africa, and the many other universities and institutes offering courses in space policy and law, space transportation, and space science and applications.

Preface

This book grew out of something called the Montreal Declaration. This short declaration was unanimously adopted by an international group of about a hundred space scientists, engineers, and lawyers concerned with the future development and governance of outer space in a time of some entrepreneurial innovation, global change, and some would even say turmoil. It called for an interdisciplinary investigation of all of the elements of change in the world of satellite applications and space exploration in order to assess what was new and revolutionary on the space horizon and what new forms of governance might be needed.

This was not an attempt to reject or turn back the forces of change. Rather it was a call for the study of the innovations that would give rise to a new era of space activities and to see what innovations in the international regulatory and space governance regime might help unlock the potential of the future without giving rise to conflicts in space. Heaven knows there are plenty of conflicts right here on planet Earth. Some elements of change are clear. There are more and more corporate activities in space, and space law is essentially aimed at nations and not industrial enterprises.

There are today a number of new and developing space enterprises and activities that include space mining, the installation of solar power satellites, on-orbit servicing and retrofitting of satellites, and attempts to cope with the problem of orbital debris—including active removal, or the recycling of space junk in the skies. There are new military and defense-related capabilities in the skies, and some of these relate to the idea of planetary defense, which means the deployment of technologies in the skies to detect and monitor cosmic hazards such as asteroids, comets, and solar storms as well as systems to actually defend Earth against these perils from outer space.

The result of this 2-year-long effort is a book entitled *Global Governance of Outer Space*. Space scientists and lawyers will undoubtedly find a book on such a topic to be fascinating, but the general public—perhaps not so much.

However, the general public really has a vested interest in knowing about the practical opportunities represented by what is called “New Space.” In this New Space world there are new jobs, new wealth, new opportunity, and new potential conflicts among nations.

It is this practical knowledge about the future of space that this book is all about. We have sought to explain in simple language without technical formulas or arcane rules of space law what John Q. Public—or Jill X. Public—needs to know that is relevant to future job opportunities, totally new types of space industries, as well as truly serious space hazards that could have a devastating impact on our lives if we don’t take the right protective steps. The bottom line is that outer space is relevant to the lives of modern men, women, and children in ways that were never true in the past.

In short, there are changing opportunities, new corporate activities in space, new sources of wealth, and even new sources of disputes that could lead to conflict over the future of space.

The New Space industry leaders may not be who you think they are. The new operatives in the commercial space game are organizations such as Google, Facebook, and the Tesla-SpaceX complex (within the empire of Elon Musk). Indeed this New Space push is fueled by who we call the space billionaires. At the head of the space billionaire pack are Jeff Bezos, founder of Amazon.com; Paul Allen, co-founder of Microsoft; Elon Musk (founder of Space X, Paypal, and Tesla); Robert Bigelow, owner of Budget Suites; Sir Richard Branson, head of Virgin Galactic; Mark Zuckerberg, founder of Facebook; and electronic game inventor John Carmack, who created “Doom” and “Quake.” It is these people that are upending the world of technology and global enterprise at planetary levels who will be prominent in the space business during the twenty-first century.

This book is intended to reveal to a broader audience the cornucopia of new enterprises that could be opening up in the next few years. That future may well include clean energy beamed from space 24 h a day. Or it could mean new economies in space services from new types of communication satellites, remote-sensing companies, or other new types of space enterprises. It could well mean robotic mining of asteroids rich in platinum and rare Earth metals. It could mean solar space shields to protect vital Earth infrastructure as the Van Allen belts lose their protective power due to the shift of the magnetic poles. Most profoundly it might mean the establishment of permanent colonies inhabited by smart robots and humans on both the Moon

and Mars. It could mean the start of a whole new era for humans living on different worlds.

This change is driven by new technology, new instruments of military defense and weaponry, new entrepreneurial space enterprises, and a new awareness that there is a need for the sustainability of space just as there is a concern here on Earth with climate change and the sustainability of our terrestrial world. In short the space revolution is part of the overall change that is the twenty-first century. It is closely tied to a future inhabited by smart robots, which will require a redefining of jobs, employment, and wealth. Indeed, it is all tied into the practical meaning of sustainability and the very future of the human race, whether we will survive as a species.

Ignore this book at your own peril. The future is filled with both considerable risk and enormous opportunity.

Washington, DC
August 2016

Joseph N. Pelton
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Author of *MegaCrunch: Ten Survival Strategies
for the 21st Century*

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About the Author



Joseph N. Pelton, Ph.D., is the former Dean and Chairman of the Board of Trustees of the International Space University. He also is the Founder of the Arthur C. Clarke Foundation and the founding President of the Society of Satellite Professionals International. Dr. Pelton currently serves on the Executive Board of the International Association for the Advancement of Space Safety. He is the Director Emeritus of the Space and Advanced Communications Research Institute (SACRI) at George Washington University where he also served as Director of the Accelerated Master's Program in Telecommunications and Computers from 1998 to 2004. Previously he headed

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Dr. Pelton has been speaker on national media in the USA (PBS New Hour, Public Radio's All Things Considered, ABC, and CBS) and internationally on BBC, CBC, and FR-3. He has spoken before Congress, the United Nations, and delivered talks in over 40 countries around the world. His honors include the Sir Arthur Clarke International Achievement Award of the British Interplanetary Society, the Arthur C. Clarke Foundation Award, the ICA Educator's award, the ISCe Excellence in Education Award, and being elected to the International Academy of Astronautics.

Dr. Pelton is a member of the SSPI Hall of Fame, Fellow of the IAASS, and Associate Fellow of the AIAA. Pelton is a widely published author with some 40 books written, co-authored, or co-edited. His *Global Talk* won the Eugene

Emme Literature Award and was nominated for a Pulitzer Prize. Currently he is co-Editor of *The Global Governance of Outer Space* which is the global study in which over 80 scientific and legal scholars are participating in response to the Montreal Declaration of 2014.

During his career he also held various positions at Intelsat and Comsat including serving as Director of Project SHARE and Director of Strategic Policy for Intelsat. Intelsat's Project SHARE gave birth to the Chinese National TV University that now is the world's largest tele-education program. He received his degrees from the University of Tulsa, New York University, and his doctorate from Georgetown University.