1961 – The Birth of the Information Society in the United States

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The following is a subjective cyclorama from different episodes of this researcher's life through personal and family details to a kind of final research report. If the Reader is interested only in the author's results about the Birth of the Information Society in the United States, it is better to jump directly to subchapter 3.3.

1. Prologue. A personal record

For anyone without a full-year Fulbright experience, it is hard to imagine what the "absolute freedom of research" means. No deadlines, no instructions, no pressure – just self-driven, loose adventures into the jungles of narratives, problems, and literatures.

Branching out from core topics is a sweet danger – you never know where and when you will run into a dumbfounding, striking, surprising, wondrous piece of data, story, record, episode, author or book, finding new "gimmicks" arising. I'd like to show you some examples.

1.1. Serendipity

Have you ever been invited to take part in a Fulbright newcomer's reception? There are lots of scholars sitting around the tables in a random order, producing quiet and short self-introductions in polite, gentle phrases. Is there any chance of getting important contributions to your research from a *who-knows-which-kind-of-discipline he/she is in* colleague? Anyway, in my first official Fulbright community event, I met an urban scientist from Australia, who suggested that I read the books of Jean Gottmann, the French urban scientist and geographer, whose ideas may be related to my own interests.

Can you imagine my feelings when – after collecting all the important books of Gottmann – I found the term "*White collar revolution*" as the title of chapter 11 of his Magnum Opus (*Megalopolis. The Urbanized Northeastern Seaboard of the United States*)? This chapter is the first analytical description of the information society, first published in 1961, and this text *radically re-writes the historiography of information society history*. It is Jean Gottmann who has really initiated the discourse, and the future handbooks have to start with his name. And don't forget the name Richard L. Meier (*A Communications Theory of Urban Growth*, MIT Press, 1962), Jane Jacobs and other urban scientists: they are the real beginners. My duty is to finish the paper I immediately started to write: "*Life before Machlup: architects and urban planners as precursors of information society theory*".

1.2. Haphazard

Earlier, I had found T.C. Helvey's book (*The Age of Information. An Interdisciplinary Survey of Cybernetics*, Educational Technology Publications, 1971) in several lists about relevant information society literature, and when I realized that I could order it for just a few bucks, I invested in a copy. A few days later I received the book, and I was very happy to realize that this copy contains blessings from the author. Furthermore, the previous owner inserted an original newspaper clipping into the book with an article about the freshly published work of Helvey – and I had to learn from the unknown author of the article that *T. Charles Helvey, the first full professor of cybernetics in the United States, was a Hungarian-born scientist*. T. stands for Tibor, his original Hungarian first name. I started an investigation of the "old IT-boys," and I realized that Helvey is absolutely unknown in Hungary, so I found myself with a new duty: pioneering research into how they are perceived in Hungary.

1.3. Discoveries - Hungarians everywhere

Just a short list of Hungarians I ran into during my Internet and library adventures.

Charles (Chuck) Csuri, the father of computer art (1962) and Professor at Ohio State University, was born into a Hungarian immigrant family. I am proud to confess that I was able to successfully contact him by e-mail, and

I could start the Hungarian reception of this wise, lovely, and dynamic artist and scientist, who, far over 80, is still very active.

Andras Angyal (Angyal András) has developed an original theory of personality. His "holistic" approach[1] is very transformative and fruitful in the current environment-centric information society discourses. It is strange to see that he is identified several times as a *Danish* scientist. It is time for the Hungarian public to discover him.

Searching for the first usage of "control" in a social science context, I found *Nicholas Doman (Domán Miklós)*, the author of the book *The Coming Age of World Control. The Transition to an Organized World Society* (Harper and Brothers, 1942). Very fresh, very interesting, very forgotten book – I immediately started to cooperate with his son to find a way to help in his father's "revival".

1. 4. Pilgrimage to Eugene Garfield

Eugene Garfield, the founder of the *Institute for Scientific Information* (ISI, 1960) became my target as one of the living members of the Information Society "Pantheon" in US. He began regular publication of the *Science Citation Index* in 1964 through the Institute for Scientific Information, and he is the Great Old Man of scientific information services.

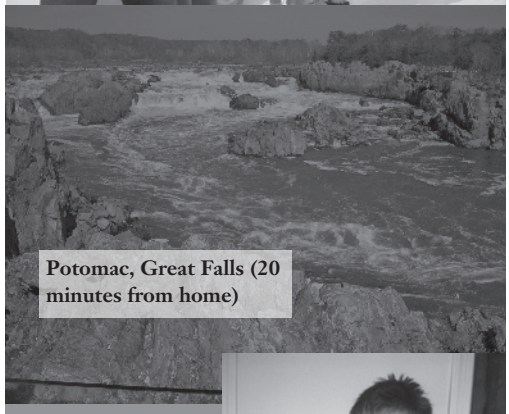
1 *Foundations for a Science of Personality* **(New York, The Commonwealth Fund, 1941 and** *Neurosis and Treatment. A Holistic Theory* **(John Wiley and Sons, 1965)**

Eugene Garfield and the author in Philadelphia (May, 2007)

Harriet Mayor Fulbright and the author in Washington DC (October, 2006)

Townhome basement as an alien's scientific headquarter

Enrichment programme, Chesapeake Bay



Potomac, Great Falls (20 minutes from home)

I am a proud parent of my son

Hungarohalloween

I am very happy to have had a chance to visit him in Philadelphia, and to see his inexhaustible energy for working, learning, and innovating far into his 80's. I am planning to write about him as a gate-opener to the science of the information society and as an emblematic figure of the early information services, beyond information technology.

2. Family life in Virginia

It was one of the best decisions of my life to bring my family (my wife and my four children) with me, and then to live in Loudoun County, VA instead of Washington, DC. The public schools are excellent here, the grass is green and life is calm, and my basement became a research headquarters within just a few weeks.

One year is enough for a flexible child to learn the language, the (multi)cultural society in the US, and the basics of living here, as well as to make friends, learn new sports, and feel the pros and cons of the American way of life. The weekends and holidays provided extraordinary possibilities to discover the famous sights of the DC-area, the Potomac River, the Shenandoah Valley, the Chesapeake Bay, and other gems on the East Coast, such as the Outer Banks, the Smoky Mountains, Florida, and New York

This was the best year in our Family Chronicle, ever.

3. Research record

It was necessary to change my focus. Instead of composing one monographic book, I decided to write a few original articles. I had to realize that my plan was too ambitious and that I did not have enough time to perform all of my research and finish a book. On the other hand, my results are more interesting than I expected. They are real novelties, and I hope that I can publish these results soon.

3.1. The start-up hypotheses

According to more and more commentators, the final emancipation of the information society as an independent field of scientific inquiry is related to the publication and impact of Manuel Castells's trilogy on the information era (*Castells*, *1996*, *1997*, *1998*). While, even earlier, the examination of the information society had unquestionably been one of the most exciting fields of current social theory, the reception of Castells's monumental work contributed to its becoming an accepted discipline (*Duff, 2000*) and a field of knowledge that came to be widely taught in higher education.

Since then, however, the focus of the discourse on the information society has been displaced more and more toward the future, primarily because of the entry of the topic into political and public speech (*information society strategies*) and also because the discourse has become preoccupied with technology (*IST – information society technologies*). Oddly enough, it is exactly *this orientation toward the future that has fed the demand for investigating the origin and roots of the information society*. There is, however, hardly any professional literature on the latter topic; the only starting-point, Dordick and Wang's retrospective work (*Dordick 1993*), is still unique. Meanwhile, three historical trends have evolved that are valuable in themselves but have diverted attention from the birth of the information society:

- *The hermeneutical trend* is mainly focused on the history of thinking about the information society – i.e. on publications, authors and the history of notions (*Webster*, *1995*, *Crawford*, *1983*)
- *The hyper-historical* trend has jumped from the end of the 19th Century back to the last third of the 18th Century in researching the prehistory of the information society but lacks a message about its actual birth (*Mattelart*, *2001*, *Headrick*, *2000*, *Darnton*, *2000*)
- *The technology history trend* reduces the history of the information society to the history of its key technologies, arriving at questionable statements, such as: "The information society was born in the spring of 1963 with the founding of MIT's Project MAC" (Garfinkel, 1999; MAC—Machine-Aided Cognition—as the goal and the multiple-access computer as the tool).

3.2. The original objectives

Although any single year or even a decade cannot be designated as the start of the information society, I saw more and more reason for *1961 to be considered as a landmark year in every respect*. I am ready to argue that this was the year when the most pregnant changes in all the important sub-systems of society and in all types of information operations took place; and that *most of these changes* (although not every one of them) *point to the United States*.

By fitting together the many and only partly known historical puzzles, data, and events, I wanted to give a comprehensive, coherent, and novel picture of the beginning of the world historical change that has expanded enormously since then, focusing on the time when the tectonic shift had already taken place but was recognized and consciously focused on by only a very few and exceptional individuals. Even the experts immersed in the topic may be surprised at the number of developments that had taken place between 1960 and 1962, which, in retrospect, turn out to be clear indications of the paradigmatic change, the evolution of the information society itself.

The clarification of this observation will continue the discourse started by James Beniger in his epoch-making book, published in 1986. According to the preface of this book, young Beniger, who was about to start his university studies, was, during a summer of professional practice, involved in the comprehensive development programs launched in the aftermath of the Sputnik-shock. Instead of asking simply: *why?* — he found himself faced with the question: *why precisely now* is it that revolution is going on in society and technology? And although the conceptual or theoretical answer is given in the pages of his book, *Control Revolution*, I believe that a practical answer can also be given, based on a detailed and revealing analysis of concrete historical material. Such an answer will also make more precise Naisbitt's (1982) famous adage, referred to by many, according to which "information society was born in 1956 or 1957... [This] was the end of the industrial era..."

To illustrate my ideas, I would like to introduce some topics as elements of my research plan.

- *Society and production — from the perspective of employment, the product world, and consumption*

This topic shows the rupture of long-term changes in society as a "real sector", starting from Fritz Machlup's pioneering work (*Machlup, 1962*) and going on to the collection and arrangement of the most important lines of data.

- *(Information) technology — pioneers everywhere*

This is a survey of the decisive steps concerning both the application of computer science (Unimate, the first industrial robot) and the path leading to the evolution of the Internet; and also the new world of reproduction (the beginning of mass xerography, 1960).

- *(Knowledge) technology — the birth of alternatives*

  The emblematic event here is the

founding by Ivan Illich of the Center for Intercultural Documentation (CIDOC) in Cuernevaca, Mexico in 1961. In just a few years, new dimensions in higher, lower, and adult education have opened up, and the approach later known as knowledge management in company organization came into being.

- *Science — a leap in getting to know, a leap in topics*

The beginning of space activities and space applications, the silent revolution in scientific establishments, and the new phase of science all appear, in indirect reflection, in *The Structure of Scientific Revolutions* (*Kuhn*, *1962*).

- *Arts — visions and sensitivities*

The topic covers science fiction, fine arts, and architecture, with bewildering forecasts and fine intuitions.

- *The global narrative — the birth of planetary quality*

According to my hypothesis, the birth of the information society can be dated to the same short period in time as the birth of global quality, in a system-science sense. This planetary entity indicates its arrival with the introduction of the unified measuring system (Systeme International d'Unité, 1960) and the explosion of space research. It is not by chance that the basic book of *Cybernetics* is also published at this time (*Wiener*, *1961*).

- *Social theory — the direct and indirect vanguards of reflection*

While Machlup's great work (*1962*) is a fundamental part of the information society discourse, it is rather strange that Marshall McLuhan (*1957*, *1961*, *1962a*, *1962b*) has not yet been integrated into the tradition. The works of the Japanese writer Tadao Umesao, published in these years, are hardly known, even though he is the father of the notion of the information society and its first real theoretician. I plan to point out that political science *(Schattschneider*, *1960*, *Edelman*, *1960*) and sociology perceived the whiff of change at the same time, and that everyone approaching from the direction of communication (*Williams*, *1961*, *1962*) came close to the conception of the *information society* during this period of time.

3.3. Preliminary Results

3.3.1. Modelling the birth of Information Society

I realized that to reconstruct the birth of the Information Society in a narrative structure is not enough to find the answer for the most disconcerting questions. Why *only* in the United States? Why *then* and not earlier or later? Which factors are behind the uniqueness, discreteness, specificity, and particularity of the United States' social history?

My jumping-off place is the statement that *(information) technology is not the agent of change*, *itself*. We need to construct *a flowchart* to understand the anatomy of the major system clusters and find the crucial transformative forces. Its elements are social relations and activity patterns:

- *Interconnectivity*
- *Cognition*
- *(Knowledge) Assets*
- *Coordination*
- *Decision*
- *Action (Performance)*

Of course, we can find revolutionary technology behind all of these "clusters", as well as the *power of consistent mutual transformations* between and among them as a resolution for the questions. After establishing this structure and logic, we can start to "fill up" the categories with the well-known historical material. I am working hard to develop and to visualize this innovative model as a guide for the reconstruction process.

3.3.2. Information Society: The Rhythm of Emergence

In the United States, based on complex indicators, *the capital and its environs* (*the Greater Washington Area*) *were regarded as an information society as early as the 1950's*. Within a few years, the New York-Boston axis attained the same status, and by 1955 the entire east coast, the "Megapolis," and California, as well as the Great Lakes region joined this group. *Based on national indicators, it could be claimed that around 1960 the United States, which is the size of a continent, had become an information society*.

3.3.3. 1961 – what a year it was

I am more determined and resolute that *if a single "emblematic" year denoting the "beginning" of the information society is to be specified for future history textbooks, it should really be 1961*. This was the year when the main economic indicators in the United States "tipped over", and when the prototype of the computer network which forms the technological "tissue" of the information society was built. This was the time when humanity entered the space age and embarked upon signal transmission via satellite, and finally, as mentioned beforehand, this is when the term "information society" was coined.

3.3.4. Mounds of evidence

Did you know that the fiber-optic revolution started in the field of gastroenterology? That the origins of optical character recognition, computer graphics, computer-generated music, computer games and the barcode are deeply rooted into the Big Decade (between 1954-1964)? That almost all the most important concepts of our age were coined also during these years? (Nanotechnology, the fractal, the new media, bionics, the cyborg, artificial intelligence, and the information age itself). This period is the cradle of knowledge technologies, the new generation of professional information services and knowledge companies – and a lot of other things. Once we could build the skeleton of the model, it was then easy to stick these "inert materials" on to it.

4. Epilogue. Scholarship publication file[2]

4.1. In English, published

1. Information age education in a sustainable world (3)
   Practice and Theory in Systems of Education Vol. 2. No. 3-4 (2007) p. 65-78. http://www.eduscience.hu/ (with Vietorisz, Thomas)ű
2. Information society – what is it exactly? (The meaning, history and conceptual framework of an expression) (4)
   Information Society. Textbook Ed: Pinter,
   Robert Gondolat-Uj Mandatum, 2008

4.2. In English, before publishing:

3. Knowledge producing megamachines: social innovation for the information age (3)
   International Journal of Knowledge and Learning

4.3. In Hungarian, published

4. Az információs társadalom gondolat európai szállászcsinálója. In memoriam Jean-Jacques Servan-Schreiber (1924-2006) (4)
   Információs Társadalom, 2007/1. 124-136.o.
   (The European pioneer of information society thinking. In memoriam Jean-Jacques Servan-Schreiber (1924-2006).)

5. A horizontális kormányzás imperatívusza – új Hoover-bizottságok felé (2)
   Információs Társadalom, 2007/1. 31-35.o.
   (The imperative of horizontal government. Towards new Hoover commissions.)

6. A cyber-infrastruktúra mint aktuális kihívás és mint tudományszociológiai probléma (2)
   Magyar Tudomány, 2007/4 475-489.o.
   (Cyberinfrastructure. A challenge for the sociology of science)

7. Az információs társadalom történetisége (5)
   Információs Társadalom, 2007/3 47-69.o.
   (The Historicity of the Information Society)

8. Telpak, Telstar, Carterfone. Az információs társadalom kialakulásának telekommunikációs metszete az Egyesült Államokban (1956- 1968) (5)
   In: *Mozaikok a hazai telematika eredményeiből. Gordos Géza 70. születésnapjára* Szerk: Talyigás Judit Híradástechnikai Egyesület, 2007 57-71.o.

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2 The numbers (1-5) after the titles are representing the relavance of the publication according to the „core topic" (the original research plan)

(Telpak, Telstar, Carterfone. The emergence of the Information Society from telecommunication aspects (1956-1968).)

9. „Milliónyi kis tudáskazán". Az oktatás átalakítása és a fenntartható világba való átmenet (3)
Eszmélet 75. (2007 ősz) 5-36.o.
(Vietorisz Tamással)

(„Millions of tiny knowledge-furnaces". Transformation of education and transition to a sustainable world)

10. Digitális kori kormányzás (3)
Demos, 2008 1-81.o.
(Digital Era Government)

11. „A monitor a festővásznam". A számítógépes művészet magyar úttörőjéről (Chuck Csuri, 1962) (5)
In: *Cseppekből lesz az eső. Bakonyi Géza Emlékkötet* Szerk: Simon Melinda, Hegyi Ádám Szeged, 2008 április
(The screen is my canvas. On the Hungarian pioneer of computer art (Chuck Csuri, 1962).)

4.4. The final version is almost ready – going to be published

12. Life before Machlup: architects and urban planners as precursors of information society theory

13. Posztindusztrialitás, fehér gallér, agymunka. Az információs társadalom fogalmi előzményeihez (4)

(Post-industrial society, white collar, brainwork. On the conceptual precursors of Information Society)

14. Két kontrollforradalom között: az információs társadalom közoktatásának körvonalai (3)
(Between two control revolutions. About the public education of the Information Society)

15. The Birth of the Information Society in the United States (ppt-presentation with 150 slides) (5)

Bibliography

1. Information Society basics

Bell, Daniel (1976): The Coming of Post-Industrial Society: a Venture in Social Forecasting New York, Basic Books

Bell, Daniel (1980): The Social Framework of the Information Society In: Forester, T. (ed) The Microelectronics Revolution: The Complete Guide to the New Technology and Its Impact on Society. Cambridge, MA: MIT Press

Beniger, James R. (1991): "Information Society and Global Science" In: Dunlop, Ch.-Kling R. (eds.): Computerization and Controversy: Value, Conflicts and Social Choices. San Diego: Academic Press

Beniger, James R. (1986): The Control Revolution. Technological and Economic Origins of the Information Society. Harvard University Press

Black, Alistair (1998): Information and modernity: The history of information and the eclipse of library history. Library History, May, vol.14.

Castells, *Manuel* (1996,1997,1998): Manuel Castells: The information age: economy, society and culture I-III. Blackwell (I. The Rise of the network society II. The power of identity III. End of Millennium)

Cordell, *A. J.* (1985): The Uneasy Eighties: the Transition to an Information Society. Ottawa, Science Council of Canada: Hull Quebec

Dordick, *Herbert S.- Wang*, *Georgette* (1993): The Information Society. A retrospective view SAGE Publ.

Edelstein, *A.S. - Bowes*, *J.E. - Hassel*, *S.M.* (eds.) 1978: Information Societies: Comparing the Japanese and American Experiences International. Communication Center, School of Communications, University of Washington

Kumon, *Shumpei* (1994, 2001): Theory of Information Civilization

Levinson, *Paul* (1999): Digital McLuhan. A guide to the information millennium. Routledge

Masuda, *Yoneji* (1980): The Information Society as Post-Industrial Society. Tokyo:IIS, Washington DC:The World Future Society.

Masuda, *Yoneji* (1985): Computopia. In.: T. Forester (ed.): The Information Technology Revolution. Oxford: Blackwell

Masuda Yoneji (1990): Managing in the Information Society: Relesing Synergy Japanese Style. Oxford, Blackwell

Marien, *Michael* (1996): New communication technologies: a survey of impacts and issues FUTURESCO No.6. (October) pp 6-20.

Martin, *James – Adrian R.D. Norman* (1970): The Computerized Society. Englewood Cliffs,N.J., Prentice Hall

Martin, *James* (1978): The Wired Society. Englewood Cliffs,N.J., Prentice Hall

Martin, *James* (1981): The Telematic Society. Englewood Cliffs,N.J., Prentice Hall

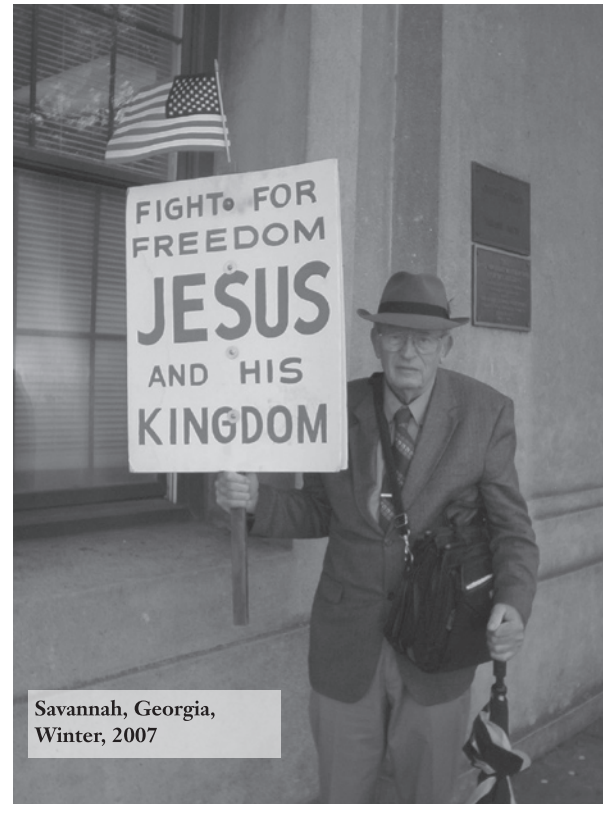
McLuhan, *Marshall* (1964): Understanding Media: The Extension of Man. New York: New American Library

McLuhan, *Marshall* (1967): The Medium is the Massage. New York: Bantam

Mitchell, *William J.* (1995): City of Bits. Space, place and the Infobahn. MIT Press

Naisbitt, *John* (1982): Megatrends

Roszak, *Theodore* (1994): The cult of information: a neo-luddite treatise on high-tech, artifical intelligence, and the true art of thinking. Berkeley: University of California Press, 1994.



Savannah, Georgia, Winter, 2007

Schement, J.R. - Curtis, T (1997): Tendencies and tensions of the information age. New Brunswick, Kondon, Transaction Publishers

Shapiro, Andrew L. (1999): The Control Revolution A Century Foundation Book, Public Affairs, New York

Toffler, Alvin and Heidi (1981): The Third Wave. Pan Books

Toffler, Alvin (1990): Powershift. Knowledge, wealth and violence at the edge of the 21st century Bantam Books.

Touraine, Alain (1969): La societé post-industrielle. Denoël, Paris

Webster, Frank (1995): Theories of the Information Society (The International Library of Sociology). Routledge.

2. Contemporary works 1960-1962

Bell, Daniel : The End of Ideology New York, The Free Press, 1960

Cooley Charles Horton: Social Organization. A Study of the Larger Mind, Shocken Books, New-York, 1962 (re-edition)

Edelman Murray: Symbols and political quiescence American Political Science Review 1960 (54): 695-704

Kemeny, John: Games of life and death. Nation, 21 (1961), p. 47

Kleinrock Leonard: Information Flow in Large Communication Nets (1961 May 31) First Paper on packet-switching (PS) theory

Machlup, Fritz: The Production and Distribution of Knowledge in the United States. Princeton University Press, 1962

McClelland, David C. : The Achieving Society (Princeton, N.J., Van Nostrand) 1961

Schattschneider, Elmer Eric: The Semisovereign people: A realist's view of Democracy in America New York: Holt, Rinehart&Winston 1960

Licklider, J.C.R. & Clark, W. : On-Line ManComuter Communication (1962August) *Galactic Network* concept encompassing distributed social interactions

McLuhan, Marshall: The Electronic Revolution in North America. International Literary Annual 1: 1958

McLuhan, Marshall: "New Media and the New Education." In: Christianity and Culture. 1961 181-90.

McLuhan, Marshall: "The Electronic Age: The Age of Implosion." In Mass Media in Canada, edited by John A. Irving. 1962 179-05. Toronto: The Ryerson Press.

McLuhan, Marshall: The Gutenberg Galaxy: The Making of Typographic Man. Toronto, University of Toronto Press. 1962

Szilárd Leó: The Voice of the Dolphins 1961

Weiner, Norbert: Cybernetics. Cambridge, Mass: The MIT Press, 1961

Williams Raymond: The Long Revolution London, Chatto&Windus 1961

Williams Raymond: Communications New York, Barnes&Noble 1962

3. Fiction

William S. Burroughs: The Soft Machine, 1961

Lem, Stanislaw. Solaris. NY: Harcourt Brace & Co., 1961