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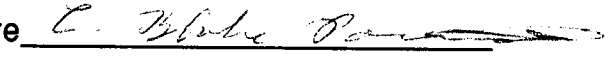
Signature 

Date 10/14/89

The Soviet Watchers

A Biographical Directory to Western Sources of Information on Soviet Space Efforts

A Thesis

Presented for the

Master of Science

Degree

The University of Tennessee, Knoxville

C. Blake Powers

December 1989

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This thesis is dedicated in grateful appreciation to my parents, Clifford Blake Powers, Sr. and Virginia Davis Powers. Without their help, encouragement and love, neither this nor any other achievements would have been possible.

ACKNOWLEDGMENTS

In the course of thesis research, a number of scholars have assisted me generously. In particular I am indebted to Professors George Everett, Paul Ashdown, and George Sinkankas, who served as my director and committee respectively. With their consultation, guidance, criticism, and encouragement, I was able to achieve results otherwise impossible. Whatever errors remain in my work, however, are solely my responsibility.

I would also like to acknowledge with thanks the help of Charles P. Vick, who provided both resources and encouragement; Art Bozlee, Dr. Michael Singletary, and Dr. Edward Caudill.

ABSTRACT

Space science plays a critical role in today's world, from economics to military strategy, and the coverage given this subject in the media is equally as important. While most space news coverage in the United States appears to be devoted to NASA efforts, programs in other countries deserve similar coverage as they can confer significant advantages to their respective countries. This is especially true in the case of the Soviet Union.

Being a comparatively closed society, the Soviet Union has presented a unique challenge to Western journalists attempting to cover its space program. Since traditional sources (in the Western sense) have not been available, others have had to be developed. The primary source has been the Soviet observer, an individual in the West who has made a study of the Soviet efforts and is able to comment upon these efforts publicly. Such observers have, in effect, acted as surrogate Soviet scientists for the media.

Little information is available on these observers, and almost no data were available on the topic of sources for Soviet science news. In order to correct these deficiencies, a mail questionnaire was sent to more than fifty observers to collect information for a reference directory to be used by the media and academic communities. This directory not only contains contact information on the 26 who desired to be included, but also profiles each person as to areas observed, other programs monitored, education, and other information needed to select sources for a particular story or topic. In addition, it provides a profile of a "typical" member of this predominantly male, well educated, middle-aged group.

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Part One

Introduction

As science and technology are linked more and more to a country's economic and political well-being, educating the public about the scientific efforts of our own and other countries becomes increasingly important.

This is especially true when it comes to the scientific efforts of a closed society -- be it politically or culturally closed. The most obvious example of this can be seen in relation to the world's largest space power -- the Soviet Union.

As with all closed countries, the Soviet Union exercises tight control over both its experts and its media. Since these traditional sources are closely controlled in contacts with Western media, another type of source has been developed -- the Soviet observer. Dozens of these observers help Western media monitor and analyze Soviet space efforts. Yet, there exists little literature on and no directory of these important people. It is the purpose of this thesis to fill this need.

Significance

The importance of science and technology in the modern world, especially aviation and space, has been generally understood for more than 60 years. Captain B. H. (Sir Basil) Liddell Hart noted the importance of scientific advances during World War I in his 1925 work, *Paris, or the Future of War.* In

discussing the effect of the airplane on the conduct of war, he asked:

> ...Is the air the sole medium of future warfare? That this will be the case ultimately we have no doubt, for the advantages of a weapon able to move in three dimensions over those tied to one plane of movement are surely obvious to all but the mentally blind.[1]

The airplane did indeed revolutionize the art of war, just as it did many other facets of life. Travel across the Atlantic became a matter of hours, rather than days or weeks. With its speed and ability to reach almost anywhere on the globe, the airplane revolutionized travel, exploration, commerce, and communication.

Indeed, it was the airplane, along with radio, which helped usher in the era of modern mass communication. The plane made possible the rapid, timely delivery of printed material around the world, while radio allowed news and entertainment to be broadcast around much of the world in real time.

Just as the airplane helped to revolutionize the post-Great-War world, so has space exploration revolutionized the post-Sputnik era. Modern mass communication would not exist as we know it without the communication satellite and attendant technology. There are few areas of modern life that have not been changed as a result of space exploration.

The need for extremely strong, yet lightweight, structural materials for rockets and components has led directly to new alloys and composite materials. But few, if any, people ever stop to think that their fuel efficient -- and safer -- automobiles, tires belted with materials both stronger and lighter than steel, or fancy tennis rackets come out of research done for the space program.

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[1] Liddell Hart, Capt. Basil H., *Paris, or the Future of War*, P. 53-54 (New York: Garland, 1972).

It was also the need for rugged, small, and reliable electronic components that led to microminiaturization, and the modern electronics revolution. Cheap pocket calculators, home and business computers, headset radios and tape players, and compact disc players all owe some portion of their existence to space related research.

Nor does the list stop there. Doppler ultrasound, CAT scans, and wireless telemetry for intensive care patients are just a few of the direct and indirect contributions to the field of medicine. New or improved synthetic fabrics and fabric treatments also come from space research.

In his collection *Expanded Universe*, engineer and author Robert A. Heinlein recalls testifying before Congress regarding space research spinoffs as they affected the elderly. In discussing the numbers of such spinoffs, he remarked, "But this I must say: NASA's presentation is *extremely* modest; it cites only 46 applications--whereas there are hundreds."[1]

Such spinoffs have also resulted in a significant economic return. In the afterword to his testimony, Heinlein also notes, "It is easy to prove that the space program paid for itself several times over in terms of increased gross national product..."[2]

By no means should these benefits be considered to be strictly in the past. Current efforts will result in applications at which we can only guess. Direct benefits will come from orbital manufacturing -- where pure crystals, metals, and pharmaceuticals could spark entirely new scientific revolutions. As

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1 Heinlein, Robert A., *Expanded Universe, The New Worlds of Robert A. Heinlein*, p. 503 (New York: Ace Books, 1980).
2 Ibid., p. 513.

reported in 1983, even the modest production of pharmaceuticals could benefit more than 25 million people a year.[1]

And as with all advances, there are direct and indirect military applications to space research as well. Seizing the high ground has been a military truism since long before Clausewitz wrote, "High ground offers three strategic assets: *greater tactical strength, protection from access, and a wider view.*"[2] There can be no doubt that space is the ultimate high ground.

Space-based resources allow a country to gather information on agriculture, communications, geography, topography, military dispositions and capabilities, weather, and resources. Modern military command, control, communications, and intelligence (C^3I) are almost entirely dependent on space based resources. These resources and operations also hold the key to advanced offensive and defensive systems.

Any nation, or group of nations, that can control access to space will assure itself world dominance. It will be in a position to wage unrestricted -- and largely unopposed -- psychological, economic, or traditional warfare. Indeed, it will have won through what Possony and Pournelle refer to as "Technological Warfare."[3] Their definition is "...the direct and purposeful application of the national technological base and of specific advances generated by that base to attain strategic and tactical objectives."[4]

As they note:

---

1 Powers, Blake, "RX from Space," *Space World*, T-3-231:4-5 (March 1983).
2 Clausewitz, Carl von, edited and translated by Michael Howard and Peter Paret, *On War*, p. 353 (Princeton: Princeton University Press, 1976).
3 Possony, Stefan T. and J. E. Pournelle, *The Strategy of Technology: Winning the Decisive War*, p. 4 (Cambridge: Dunellen, 1970).
4 Ibid, p. 4.

> The winner of the Technological War can, if he chooses, preserve peace and order, act as a stabilizer of international affairs, and prevent shooting wars. The loser has no choice but to accept the conditions of the victor, or to engage in a shooting war which he has already lost.[1]

Because space science and exploration drive advances in such a wide variety of fields, almost all of which will have a direct effect on the public, the coverage devoted to these topics in both the classroom and the mass media assumes critical importance.

While there is a fair amount of coverage of United States space efforts, it rarely mentions the potential direct or indirect benefits to the public.[2] There is little time or coverage devoted to foreign efforts. The small amount of foreign space or science news that is covered outside the specialty journals normally deals only with major events announced by the government concerned.[3] This coverage usually is limited to what is announced, with little interpretation or explanation by outside experts. This means that little attention is paid to the possible effects of that program on the United States.

This lack of coverage applies in particular to the Soviet Union. With the possible exception of *The New York Times*, no major United States newspaper, magazine, or network provides steady coverage of the U. S. S. R.'s space efforts. Nor is this entirely the fault of the mass media. Many observers of

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1 Possony, Stefan T. and J. E. Pournelle, *The Strategy of Technology: Winning the Decisive War*, p. 4 (Cambridge: Dunellen, 1970).

2 For Example: "Voyager 2 set to visit Neptune in August '89," *The Times-Picayune*, March 14, 1987, A-2. "U. S. may back private venture for space base," *The New York Times*, January 9, 1988, A-1. "NASA fires Delta rocket for Indonesia, ends era," *The Atlanta Constitution-Journal*, March 21, 1987, A-2.

3 For Example: "2 cosmonauts rocket toward rendezvous with orbiting lab," *The Atlanta Constitution*, February 6, 1987, A-7. "Soviets preparing space lab as cosmonauts orbit Earth," *The Times-Picayune*, February 7, 1987, A-14.

Soviet space and science efforts (hereafter referred to as Soviet watchers) are not well known except to each other, and various factors have caused them to remain largely unknown.

Literature Review

There are numerous specialty directories in print, such as *Dun's Consultants Directory*[1], and *American Men and Women of Science*[2]. Others focus on even more specialized groupings, such as *Who's Who in Biotechnology*[3], and *The Biographical Dictionary of Scientists, Astronomers*[4]. Older directories, such as *Men of Space*[5] and *Who's Who in Space*[6], offer some guidance in the space field. Yet no directory, biographical dictionary, or listing of Soviet observers can be found. A search through *Books in Print*[7] and the *Directory of Directories*[8], using a twenty-word list of possible subject headings/key words, located no directory of space experts or observers of any type. The key word list was compiled from the *Library of Congress Subject*

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1 Dun's Marketing Services, *Dun's Consultants Directory* (Parsippany, New Jersey: Dun and Bradstreet, 1985).
2 R. R. Bowker, *American Men and Women of Science*, 17th ed. (New York: R. R. Bowker, 1989).
3 Chaudier, Louann, senior ed., *Who's Who in Biotechnology* (Woodbridge, Connecticut: Research Publications, 1986).
4 Abbott, David, *The Biographical Dictionary of Scientists, Astronomers* (New York: Peter Bedrick Books, 1983).
5 Thomas, Shirley, *Men of Space* (Philadelphia: Chilton Company, 1960).
6 Baker, Norman L., ed.-in-chief and Lynne Weiser, ed., *Who's Who in Space* (Washington: Space Publications, 1963).
7 Olenick, Michael, et al., ed., *Books in Print, Subject Guide* (New York: R. R. Bowker, 1988-89).
8 Marlow, C. A., et al., ed., *Directory of Directories*, 5th ed. (Detroit: Gale Press, 1988).

Headings[1], and consisted of the following words: Aerospace, American, Consultants, Experts, Foreign, International, Non-Governmental, Observers, Open, Public, Public Domain, Selected, Space, Special, Specialized, Soviet, United States, USSR, Western, and World.

When this search proved negative, a search was made of three disciplines -- History, Library & Information Science, and Mass Communications -- in the *Dissertation Abstracts International*[2] for the years 1980-1988, using the key words aerospace, analysts, observers, science, sources, Soviet Union, and U. S. S. R. When this also proved negative, a search was made of *Master's Abstracts: A Catalog of Selected Master's Theses on Microfilm*[3]. Under the categories of History, Journalism, Library and Information Science, and Mass Communications, all titles were checked for topics similar or related to this topic for the years 1980-1986; and for the first three quarters of 1988 (Volumes 1-3). The volumes for 1987 were unavailable for review. This search also proved negative.

Since no directories, dissertations, or theses on the subject of space observers or experts appear to have been done since 1980, a search was then made of research articles. In *Communication Abstracts*[4] for the years 1980 to the present, a search was made under the headings of Science, Soviets, Source(s), and Space. No articles relating to the topic of space observers or experts could be found.

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1 Subject Cataloging Division, *Library of Congress Subject Headings*, 11th ed. (Washington: Library of Congress, 1988).

2 University Microfilms International, *Dissertation Abstracts International*, 41-48 (Ann Arbor: UMI, 1980-1988).

3 University Microfilms International, *Master's Abstracts: A Catalog of Selected Master's Theses on Microfilm*, 18-24, 26[1-3] (Ann Arbor: UMI, 1980-1987).

4 Gordon, Thomas F. ed., *Communication Abstracts*, 3-10, 11[1-3] (Beverly Hills: Sage Publications, 1980-1988).

Indeed, it would appear the only means of collecting the names of Soviet observers would be through painstaking study of existing science and writing directories, books on the Soviet space program, or such newsletters as may be available. Indeed, by studying the text, chapter notes, and acknowledgements to such books as *The Kremlin and the Cosmos*,[1] *Red Star in Space*,[2] *Red Star in Orbit*[3], and *The New Race for Space* [4] one could learn official Soviet sources. However, few names of outside observers would be learned. More names could be gleaned from newsletters put out by observers such as James Oberg and Art Bozlee. However, one has to be aware of these private newsletters and have contact information for the authors in order to obtain them.

In order to locate any books or articles on Soviet Observers which might not be referenced in the above sources, a computer search was made using the Online Computer Library Center (OCLC) database. The OCLC database is an international computer network used by libraries to acquire and catalogue library materials, and has more than 4,900 members worldwide.[5]

A search was made of this database using these key words -- Aerospace, Astronautics, Consultant(s), Expert(s), Exploration, Observer(s), Outer, Russia(n, ns), Sciences, Space, Soviet(s), USSR, and Watch(ers) -- in Boolean logic chains. This search also failed to locate any material on Soviet space observers.

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1 Daniloff, Nicholas, *The Kremlin and the Cosmos* (New York: Alfred A. Knopf, 1972).
2 Caidin, Martin, *Red Star in Space* (New York: Crowell-Collier, 1963).
3 Oberg, James E., *Red Star in Orbit* (New York: Random House, 1981).
4 Oberg, James E., *The New Race for Space* (Harrisburg, Pennsylvania: Stackpole Books, 1984).
5 Lucas, Amy, ed., *Encyclopedia of Information Systems and Services*, 9th ed. (Detroit: Gale Research, 1989).

Another electronic search was made for periodical articles using the InfoTrack™ system. This search located one article on five Soviet space observers, who were referred to as "Cosmokremlinologists."[1] These observers were listed as Nicholas Johnson, Saunders Kramer, Jim Oberg, Marcia Smith, and artist Dan Gauthier. The article provided some background information on each person, a brief view of his or her observations, and some anecdotes -- but no contact information and only limited information on their work with the media.

Because this article dealt primarily with those Soviet observers already frequently called upon by the media, and gave no explanation on how to obtain further data on either observers or Soviet space efforts, a search was made of journalism textbooks for references to gathering information on science and technology.

Hillier Krieghbaum's 1967 book, *Science and the Mass Media*[2], had no index citations for sources, foreign news, or Soviet sources. A check of the references to the Soviet Union and foreign correspondents found no mention of suggested sources or methods of obtaining information on foreign science programs.

Science and the Media[3], by Peter Farago, had no citations in its index for sources, experts, Soviet, or space. John Paul Jones' book, *Gathering and Writing the News*[4], had no citations in its index for science, source development, Soviets, or foreign news. Indeed, its sole concern with sources, as with most of

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1 Dorr, Less Jr., "The Cosmokremlinologists," *Space World,* X-10-286:28-30 (October 1987).

2 Krieghbaum, Hillier, *Science and the Mass Media* (New York: New York University Press, 1967).

3 Farago, Peter, *Science and the Media* (London: Oxford University Press, 1976).

4 Jones, John Paul, *Gathering and Writing the News* (Chicago: Nelson Hall, 1976)

the journalism texts consulted, appeared not to be on how to find them, but rather on how to protect them.

Jill and Peter Lambert's *How to Find Information in Science and Technology*[1] is an apparently excellent reference work on bibliographic sources of information. However, it provides no information on non-bibliographic sources, and nothing directly applicable to Soviet observers.

Gary Atkins and William Rivers' *Reporting with Understanding* also had no index citation for either foreign coverage or science news. It did, however, have this to say on how to develop sources: "It is also useful to decide where you need sources -- in what office or in what area of expertise -- and then deliberately set out to cultivate the people who hold particular titles." They continued this later with the comment, "When you need experts, check with trade associations or universities."[2] No advice was offered, however, on what to do when no such citations or trade organizations existed for a particular field.

In *Presenting Science to the Public*[3], Barbara Gastell simply states that the general way to obtain information for a story is by interviewing scientists. This method may work well in the West, where scientists are readily accessible to the reporter, but is not practical in a closed society such as the U.S.S.R., where efforts are directed to keeping the press away from potential sources. Therefore the Soviet watchers serve a vital purpose.

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1 Lambert, Jill and Peter A. Lambert, *How to Find Information in Science and Technology* (London: Clive Bingley Ltd., 1986).

2 Atkins, Gary and William Rivers, *Reporting with Understanding* , p. 6 (Ames: Iowa State University Press, 1987).

3 Gastell, Barbara, *Presenting Science to the Public*, p. 33 (Philadelphia: ISI Press, 1983).

Current Practices

Under 1989 Soviet practices, press contact is limited to official press conferences, press tours of space and science facilities, and rare private interviews. Indeed, the Soviets are what journalist Mort Rosenblum terms a "reluctant coverage" type government, which "feel they must allow reporters in for their own reasons, but they restrict correspondents' activities."[1] He notes that to be allowed in, correspondents have to be carefully screened by the Soviets, must live in state-approved housing, and are "...constantly harassed by bugging, surveillance and isolation."[2] But his key complaint is as follows:

> A greater problem is the lack of sources and information. Press conferences almost never happen, and interviews with even middle-level officials can take weeks of bureaucratic busywork. There is almost no such thing as private Soviet sources except for a courageous few dissidents who might talk under guarded circumstances. Western reporters can meet ordinary citizens from time to time to get the flavor of life in the Soviet Union, but such contacts are difficult and dangerous. The reporters' major Soviet sources are Tass and the state-controlled newspapers.[3]

As a result, reporters face an "official source" who is limited to presenting information that the Soviet government desires to release at that time. Questions that range outside this approved area, or that seek details that the government does not wish discussed, are not answered. In some cases, if the

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1 Rosenblum, Mort, Coups and Earthquakes: Reporting the World for America, p. 98 (New York: Harper and Row, 1979).
2 Ibid., p. 100.
3 Ibid., pp. 100-101.

question has upset Soviet authorities for some reason, the asking reporter has been barred from even this limited contact.

Because reporters covering the Soviet Union are denied access to traditional (in the Western sense) sources of information, other sources have had to be developed. These have ranged from intelligence agencies to the use of the observer/analyst -- the Soviet watcher. The watchers act as surrogate Soviet scientists, providing information on what is happening, how it is being done, speculation on likely future events, and how events will impact the rest of the world. In this thesis, the terms Soviet observer and Soviet watcher are defined as meaning non-Soviet (Western) observers/analysts of Soviet efforts.

These watchers develop their information from open sources; therefore they can discuss items about which Western government sources can't comment. This reticence may be for diplomatic or political reasons, or to protect intelligence sources. Thus, the Soviet watchers provide an independent source for information that is not otherwise available to the public. Peter Banks and Sally Ride note in *Scientific American* that:

> Before 1985 much of what was known about the Soviet space program was the result of painstaking detective work by a small group of dedicated observers in Europe and the U.S. Little information was available from official or firsthand sources. The Soviets remained reticent about their activities as a matter of policy, and the U.S. Government elected to withhold the information acquired through its own channels. The result was a general state of ignorance about important space-related events and developments taking place in the U.S.S.R.[1]

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[1] Banks, Peter M. and Sally K. Ride, "Soviets in Space," *Scientific American*, Vol. 260, No. 2 (February 1989), pp. 32-40.

They go on to note that this lack of information from the Soviets has changed, and that "in the past three years the Soviets have come forward with many details about their space ventures."[1] While Banks and Ride cite "...the spirit of glasnost..."[2] as making major changes in the openness of the program, many still hold doubts. Observers such as Art Bozlee and Charles P. Vick are willing to state that the Soviet program is almost as closed as ever. Yet, even if glasnost were the true openness claimed by its proponents, most will agree that should Mikhail Gorbachev fail, so will glasnost. Thus, the Soviet observers remain a vital link to the Soviet program. Yet no publication appears to have addressed this critical group.

To help fill this gap, a directory of Soviet observers has been created.

Directory Description

This directory will provide media and academic researchers a way of selecting individuals to provide either general information and analysis on Soviet space efforts, or specific information on a particular aspect of the program.

For the purposes of this directory, an observer should be defined as a person who through studies of the Soviet Union's space program has attempted to analyze and/or interpret current events, and forecast future events. The studies mentioned in this definition should not be limited to formal studies at an institution of higher learning, but should also encompass studies outside traditional frameworks.

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1 Banks, Peter M. and Sally K. Ride, "Soviets in Space," *Scientific American*, Vol. 260, No. 2 (February 1989), p. 32.
2 Ibid., p. 34.

A person is not included unless he or she has demonstrated both a knowledge of the subject and the ability to share that knowledge with the public.

Using this listing, the media and academic communities will have access to experts on a wide variety of topics within the field of Soviet space exploration. Diverging opinions can be noted, potential effects speculated upon, and the possibility of even the appearance of bias -- due to reliance on sources who work either for the government or a major defense contractor -- can be reduced or avoided. Also, because the directory includes observers from outside the United States, cultural bias can be avoided.

Method

The method for gathering data was the mail questionnaire. The questionnaire was developed using guidelines and methodology suggested by Erdos[1], Dillman[2], and Converse and Presser[3]. These works provided suggestions on such areas as phrasing, layout, design and incentive. The final document was typeset on a Xerox 8010 computer and the master copy printed on a laser printer. The distribution copies were then photographically reproduced using front to back printing, resulting in seven pages of questionnaire on four sheets of paper. A copy of the questionnaire is included as the Appendix.

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1 Erdos, Paul L., *Professional Mail Surveys* (New York: McGraw-Hill, 1970).

2 Dillman, Don, *Mail and Telephone Surveys: the total design method* (New York: John Wiley and Sons, 1978).

3 Converse, Jean M., and Stanley Presser, *Survey Questions: Handcrafting the Standardized Questionnaire* (Beverly Hills: Sage Publications, 1986).

Because some sensitivity concerning possible intelligence agency involvement was expected, extra effort was made to demonstrate that the questionnaire was a part of a legitimate academic research project. A School of Journalism letterhead was used on the cover of the questionnaire, on the first page of the cover letter, on the first page of the follow-up letters; and University mailing labels and/or envelopes used in all mailings.

Incentive to participate was twofold. The first incentive was inclusion in a directory that will receive the academic distribution given theses, and may be published commercially. The second was a list of contact information for each respondent and a copy of his or her own profile, which provides for improved communications within the community of Soviet observers.

As a final effort to raise response, stamps pertaining to aviation/space pioneers were used whenever possible. Since stamps are recommended over meter postage for raising response rates[1], it was hoped that the use of aviation/space stamps would increase this effect. The majority of these were of General H. H. (Hap) Arnold (65 cents), and Samuel P. Langley (45 cents). A pre-test was mailed to four observers to determine possible improvements. All four replied and minor changes were made to the questionnaire.

The revised questionnaire was initially mailed to thirty-five known Soviet watchers. The majority of these names were obtained from Soviet space expert Charles P. Vick, and supplemented with names from personal files and suggestions from Soviet space expert Art Bozlee. Further names were developed from suggestions by the initial contact list and from a colloquium list sent out by the International Space Development Conference, Ltd. In all, fifty-

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1 Erdos, Paul L., *Professional Mail Surveys,* p. 118 (New York: McGraw-Hill, 1970).

four questionnaires were sent out by April 10, 1989. Forty observers were contacted in the United States, ten in Great Britain, two in the Netherlands, one in France, and one in Sweden.

Follow-up letters were mailed approximately three weeks after the questionnaire, if no reply had been received. If a reply was still not forthcoming after another two weeks, an attempt was made to contact the person in question by phone. If this failed, a final letter was sent which stated that I had attempted to reach the watcher by phone but had been unable to do so, and once again requested participation.

Profiles and contact sheets were then developed from the questionnaires and were sent to each respondent for review. While changes in style were not allowed, all changes for the sake of accuracy were included in the revised profiles and contact sheets. Since the respondents were allowed to edit their section, the works listed in each are not footnoted. A selected bibliography of these works is included on page 116.

What might one expect to learn from such a survey? One would expect the typical observer to have a college education, and to belong to such groups as the British Interplanetary Society, the National Space Society, and the American Institute of Aeronautics and Astronautics. In addition, one would expect the typical observer to have some form of electronic contact capability, since each has manifested interest in high technology. Because of the limitations imposed by the mailing list, it is inherent that the majority of respondents would be American.

Part Two

How To Use This Directory

The key to this directory is the system of indices at the back (see pages 93-100). The observers are indexed by areas of specialization; by other Soviet areas observed; by other space programs observed; by electronic contact capability; by location; and by performance in five areas: art or drawing, freelance journalism, photography, private consulting, and public speaking.

While each of these indices is of use by itself, the directory has its fullest potential in the use of combined indices. For example, if you want to find an observer who specializes in a particular area of Soviet space for use on an evening newscast you would:

1. Look up that particular specialty in the proper index.
2. Check those names against the location index for a person in your area.

By using the indices in tandem, you can locate the observers who best meet your particular criteria and check their profiles. A wide number of permutations are possible, allowing you to be as specific, or as general, as you need to be.

It is important that no connection should be made between Soviet observation and employment; or to suggest or imply that any employer approves of, condones, supports, or verifies either the observer or the accuracy of any observation.

Each profile contains a listing of work experience, education, Soviet related work, honors, and professional societies. As a quick reference, the contact sheet in front of each profile contains a synopsis which gives the number of years of Soviet observation in the upper right corner (years experience), and can include work experience, education, honors, or some

combination of the three. Where a person had no college education or relevant work experience, or did not desire to have employment listed on the synopsis, other information such as honors was substituted if possible.

Name: **Seth Arenstein** Years Experience: **3**

Occupation: **Journalist**

Areas of Expertise

General Observations: All Soviet space efforts.

Areas of Specialization: Boosters, satellites, space stations, commercial issues, space medicine and EVA's.

Other Soviet Areas Observed: Politics and military.

Other Space Programs Observed: All.

Performs: Freelance Journalism, Public Speaking.

Education

College	Degree	Major
Brandeis University	BA	Politics
Johns Hopkins University	MA	Foreign Affairs/Econ.
Johns Hopkins University	Diploma	International Relations

Relevant Work Experience

Employer	Job Title	Dates
MacNeil/Lehrer Newshour	Foreign Affairs Research Intern	8/83-2/84
Viewpoint International, Inc.	Associate Producer	4/85-9/86

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Profile -- Seth Arenstein

Seth Arenstein started observing Soviet space efforts when he began working for *Defense Daily* and *Soviet Aerospace.*

Born on March 30, 1959, Arenstein attended John F. Kennedy High School in Bellmore, New York. He earned his BA in politics (magna cum laude) from Brandeis University and his MA in international affairs/economics from the Johns Hopkins School of Advanced International Studies. In addition, he spent his junior year at the University of Manchester in England, and earned a diploma in Polish Studies at the Jageillonian University in Poland (summer, 1983) and a diploma in International Relations from the Bologna Center of Johns Hopkins University in Bologna, Italy (1983).

He worked as a foreign affairs research intern for the MacNeil/Lehrer Newshour (8/83 - 2/84) and as an associate producer for Viewpoint International in Washington, DC (4/85 - 9/86). In September of 1986, he joined Phillips Publishing, Inc. He now serves as White House correspondent and assistant managing editor for *Defense Daily* and as editor of *Soviet Aerospace.*

Arenstein observes all aspects of Soviet space exploration, but notes special interest in boosters, satellites, space stations, commercial issues, space medicines, and extra-vehicular activities. In addition, he observes Soviet military affairs and politics in general. He also observes all other space programs.

In addition to his work on *Soviet Aerospace*, he has written two articles for *Ad Astra*: "Blizzard from Baikonur" and "Soviet Roots." Arenstein has also been a guest commentator on NPR's *All Things Considered* and *Weekend*

Edition; a guest on WAMU's live call-in talk show, the *Diane Rheam Show*,. and a guest on the Spanish-US network. He notes that his public speaking experience is too lengthy to list.

Arenstein contends that four stories constitute the highlight of his career: The first was on the signing of the INF treaty; the second was on the ceremony for Soviet Marshal Akhromeyev upon his arrival on a U. S. aircraft carrier in July, 1988; the third was the return of the U. S. shuttle to service; and fourth, an exclusive interview with Dr. Roald Sagdeyev in the Soviet Embassy.

Arenstein is a member of the Washington chapter of Phi Beta Kappa.

Name: **B. J. Bluth** Years Experience: **16**

Occupation: **Aerospace Systems Analyst**

Areas of Expertise

General Observations: All Soviet space efforts.

Areas of Specialization: Long duration flight, manned space stations and impact of long duration flights on hardware design and crew operations/training.

Performs: Public Speaking.

Education

College	Degree	Major
Bucknell University	BA	Sociology
Fordham University	MA	Systems Analysis
UCLA	Ph.D	Analysis and Design

Relevant Work Experience

Employer	Job Title	Dates
California State/Northridge	Professor	1965-1987
NASA	Aerospace Technologist	1987-Present

Contact Information

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USA

Profile -- B. J. Bluth

Born on December 5, 1934, B. J. Bluth attended Mater Misericordiae Academy in Merion, Pennsylvania. She earned her BA from Bucknell University (cum laude, Phi Beta Kappa), her MA in systems analysis and research methods from Fordham University and her Ph.D in analysis and design from UCLA. She has served as a professor of sociology at California State University at Northridge (1979-1987) and is currently working in system engineering requirements analysis for the space station program office of NASA.

Bluth began observing Soviet space efforts in 1973 because of an interest in long duration flight. This led her to specialize in that area, as well as manned space stations, and the impact of long duration flights on hardware design and crew operations/training. She has written more than 30 papers or articles and participated in a number of broadcasts.

Bluth is a member of the American Institute of Aeronautics and Astronautics, the International Academy of Astronautics, the American Astronautical Society, the British Interplanetary Society, the Institute for the Social Science Study of Space, and the Space Studies Institute.

Name: **Art Bozlee** Years Experience: **21**

Occupation: **Observer/Analyst**

Areas of Expertise

General Observations: All Soviet space efforts.

Areas of Specialization: Manned efforts: spacecraft, crew factors studies, operations, and proposed Lunar and Mars missions.

Other Soviet Areas Observed: Military aviation and military doctrine.

Other Space Programs Observed: NASA and U. S. military.

Performs: Freelance Journalism, Public Speaking, Private Consulting, Photography.

Instructional Experience

Instructor	Conference, *SDI and Beyond*	1986
Instructor	Conference, *Red Star 2000*	1987
Lecturer	U. S. Space Academy	1985-87

Honors

Distinguished Colleague of the Space Studies Institute, Princeton, NJ

Contact Information

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Profile -- Art Bozlee

"I prefer to look forward. When I write my autobiography from the Lunar Hilton sometime around 2025, I am sure I will have some memorable words to say."

With these words, Art Bozlee sums up his attitude toward life and Soviet space observation. Rather than sit on the laurels he has earned in the last few years, such as forecasting the existence of the Soviet shuttle and predicting its lauch dates, he is already looking toward future endeavors.

Born on June 27, 1952, Bozlee attended Pasco Senior High in Pasco, WA. He took part, as both a student and a lecturer, in the AIAA 1985 course on Soviet Military Doctrine and is a Distinguished Colleague of the Space Studies Institute in Princeton, NJ. He worked for Rockwell International from 1970 - 1984, and presently works for a major aerospace firm. He does not list his current employer or desire to be contacted at work, because, "My Soviet analysis is not funded by my employer, and thus I feel it is a breach of professional ethics to perform unfunded work at the company's customer expense, or to present my work as representing my employer."

He began observing Soviet space efforts in December, 1968 due to rumors about an upcoming Soviet manned launch to circumlunar orbit. In his own words, "It told me these guys were not content to allow the U. S. to be the dominant space power. Nothing I have learned in the following years has changed my opinion." Bozlee specializes in covering the manned program, paying particular attention to EVA operations, spacecraft, possible Lunar and

Mars missions, and crew factors studies. He also covers Soviet military doctrine, military aviation, the relationship of Party goals to hardware developed. He also observes NASA and U. S. military space efforts.

Bozlee distributes a private newsletter on Soviet efforts, contributes to *Space Flight News*, and was a contributor to the defunct *L-5 News*. He has also taken part in approximately 75 electronic media interviews dealing with Soviet efforts. He has been an instructor for **SDI and Beyond** at the 1986 AFCEA Conference and an instructor for **Red Star 2000** (a 1987 National Press Club conference held in Huntsville, AL). In addition, he lectured twice a week from 1985 - 1987 at the U. S. Space Academy in Huntsville.

Bozlee states that his work with Charles P. Vick on the Soviet space shuttle represents the current highlight of his work. He is worried that "the West is faced with a unique set of problems. On one hand the myth of Western technological superiority is firmly planted in the public and administrative mind, while a determined, able adversary is capitalizing on the lethargy it perceives in the West."

Bozlee is a member of the Space Studies Institute and the National Space Society.

Name: **Martin Caidin** Years Experience: **35**
Occupation: **Author/Pilot/Researcher**

Areas of Expertise

General Observations: All Soviet space efforts.
Other Soviet Areas Observed: Military aviation and military doctrine.
Other Space Programs Observed: All.
Performs: Freelance Journalism, Public Speaking, Private Consulting, Photography.

Relevant Work Experience

Employer	Job Title	Dates
Phillip Andrews Pub.	Technical Editor	1944-45
USAF	Consultant to Commander, AFMTC	1954-55
FAA	Consultant to the Flight Surgeon	1958-64
Metromedia	Science Editor	1961-64
Self-employed	Freelance Writer	1943-present

Contact Information

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Profile -- Martin Caidin

Martin Strasser Caidin is a multi-talented man who has produced benchmark work in such fields as astronautics; chemical, biological and nuclear warfare; aerial combat; and intelligence. He is an internationally known pilot, who after living and flying with the Air Force Thunderbirds was permanently given the designation "Thunderbird 8" by the Air Force. He has also worked both openly and covertly with the military, the CIA, the Drug Enforcement Agency, and a variety of other organizations.

However, all of this work has been overshadowed by his success as a fiction writer. He is best known to the public-at-large as the author of *Marooned*, the bestselling book and hit movie, and *Cyborg*, the novel on which the television series *The Six Million Dollar Man* and *The Bionic Woman* were based. In all, he has written more than 140 non-fiction and fiction books.

Born on September 14, 1927, Caidin received no formal schooling, either high school or college. He went to work as a freelance writer (1943-present), served as technical editor for Phillip Andrews Publishing (1944-45), and served on special assignment with the U. S. Army Air Force and the U. S. Air Force (1947-50). Since that time, he has served as a consultant to the Commander of the Air Force Missile Test Center at Patrick AFB and to the FAA's flight surgeon. In addition to his writing, he hosted a television talk show, *Face to Face*, through the Nautilus Television Network (1982-84), and has broadcast for NBC, Metromedia, Continental Radio Network and the Voice of America. He has taught courses in astronautics, biological warfare, chemical warfare, nuclear warfare and paraphysics for colleges, science groups, and the military.

His work has earned him many honors, of which he "gave away" all but two: an award by the Experimental Aircraft Association for the best rebuilt warbird in the world for his salvage and rebuiliding of a Junkers JU-52/3m-g8e bomber, and his being named as a Pioneer Aviator and Master Aviator by Silver Wings. The Silver Wings fraternity is made up of senior pilots with a requirement for membership that the person must have soloed 25 years prior to applying.

He considers one of the highlights of his life to be flying his JU-52.

Caidin began observing Soviet space efforts in 1954 when he first worked on U. S. lunar projects at the Air Force Missile Test Center. In his words he started "because they were going -- and it was damned obvious." His awareness of Soviet efforts was heightened by secret work on a 1954 U. S. moon shot (which was ordered disassembled) and a 1956 satellite launch that was stopped on the direct orders of the White House and the U. S. Army.

He observes all Soviet space efforts and also observes Soviet military science, military history, aviation, paraphysics, telekinetics, biology and cybernetics. Caidin also observes all other space programs.

His work in the area of Soviet space efforts has been voluminous. He has co-authored several books with cosmonauts, such as *I Am Eagle* with Gherman Titov, and written what may have been the first comprehensive look at the Soviet space program, *Red Star in Space.*

Caidin is a founder of the American Astronautics Society; an original member of the American Rocket Society and the British Interplanetary Society; a charter member of the Aviation Hall of Fame; a senior member of the Aviation/Space Writers Association; a member of the U. S. Army Golden Knights

parachute team and the Missile, Range and Space Pioneers; chief pilot for the Strasser Air Circus; and a command pilot with the Confederate Air Force, the Valiant Air Command, Warbirds of America, the Experimental Aircraft Association and the Canadian Warplane Heritage.

Name: **Michael Cassutt** Years Experience: **23**
Occupation: **Writer/Television Producer**

Areas of Expertise

General Observations: All Soviet space efforts.
Areas of Specialization: Cosmonauts.
Other Soviet Areas Observed: Military and politics.
Other Space Programs Observed: All.
Performs: Freelance Journalism, Public Speaking.

Education

College	Degree	Major
University of Arizona	BA	Radio-Television

Relevant Work Experience

Employer	Job Title	Dates
CBS	Writer/Producer	1979-1985

Contact Information

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By Mail

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USA

Profile -- Michael Cassutt

Michael Cassutt is a television producer and writer who has gained recognition as a space observer for his book *Who's Who in Space: The First Twenty-Five Years*. In addition to his television and non-fiction work, he has written science fiction.

Born on April 13, 1954, Cassutt attended Hudson High School in Hudson, Wisconsin, and earned a BA in radio-television from the University of Arizona. While he currently works for a variety of companies, he did work for several years at CBS (1979-85). His television credits include *TV 101*, *Beauty and the Beast*, *Probe*, *Max Headroom*, *The Twilight Zone*, *Simon and Simon*, and *Alice*.

Cassutt began observing Soviet space efforts in 1966 because he was fascinated with all aspects of space exploration. While there was plenty of information on U. S. efforts, there was very little on the Soviets. In his own words, "The search for such information became a challenge -- a game." He was also inspired by a pair of articles (1968-69) in *Analog* by G. Harry Stine.

He specializes in the cosmonauts, examining their selection, training, biographies and personalities, and in the flight directors. He also observes Soviet military and politics. Cassutt observes all other space programs of all nations, with special emphasis on the U. S. military space program. He has written "Phantom Space Crews" for *SpaceFlight*; "The 2nd Flight of the Hawk" and "The Military Salyuts" for *SpaceWorld*; "Space International" for *Future Life*; and "Soyuz T-13," "Soyuz 9," and "Interkosmos Soyuz" for *McGill's Survey of Space Science*.

Cassutt is a Fellow of the British Interplanetary Society; a member of the National Space Society, The Planetary Society and the Writers Guild of America (West); and a past vice president of the Science Fiction Writers of America.

Name: **Phillip S. Clark** Years Experience: **20**
Occupation: **Space Consultant**

Areas of Expertise

General Observations: All Soviet space efforts.
Other Space Programs Observed: Chinese in detail, all others in general.
Performs: Freelance Journalism, Public Speaking, Private Consulting.

Education

College	Degree	Major
Open University	MA	Mathematics/Computing

Contact Information

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Profile -- Phillip S. Clark

Phillip S. Clark counts three things as the highlights of his life and work: His book, *The Soviet Manned Space Programme* (1988); a visit to Moscow with BBC-TV for filming of the Antenna Phobos Programme in 1988; and seeing men land on the moon in July of 1969.

Clark was born on October 10, 1950 and attended Carlton Grammar School in Bradford, West Yorkshire. He earned an MA in mathematics/ computing from the Open University and worked for various British defense contractors before joining Commercial Space Technologies.

He observes all aspects of the Soviet space program, which he began observing in July of 1969. He also observes the Chinese program in detail and all others in general. He has written 56 papers on the Soviet program, as well as 8 papers on the Chinese. Clark has also worked extensively with the BBC, both TV and Radio, helping with specials and taking part in interviews. He has also lectured to local societies, as well as annual technical forum meetings of the British Interplanetary Society.

Clark's book was published by Salamander in the United Kingdom and Orion/Crown in the United States.

Name: **Wilson W. Crook III** Years Experience: **28**
Occupation: **Mineralogist**

Areas of Expertise

General Observations: All Soviet space efforts.

Areas of Specialization: Cosmonaut data, Zond lunar program and Vostok spacecraft design.

Other Soviet Areas Observed: Politics, military and history.

Other Space Programs Observed: NASA, ESA, Arianespace.

Performs: Freelance Journalism, Public Speaking.

Education

College	Degree	Major
Southern Methodist U.	BS	Mineralogy
University of Michigan	MS	Mineralogy

Contact Information

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Electronically

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Profile -- Wilson W. Crook III

Wilson W. Crook III has a distinction that can belong to no other -- he was the first Boy Scout in the United States to earn the space exploration merit badge. That, along with earning three palms to go with his Eagle Scout award, the discovery of seven new mineral species and being the only mineralogist at Mobil Oil, make up the highlights of his life.

Born on May 1, 1953, Crook attended Highland Park High School in Dallas, Texas. He earned his BS in mineralogy from Southern Methodist University and his MS in mineralogy from the University of Michigan. Both degrees were earned with honors. He served as president of the SMU geology club and was twice the president of the Michigan geology club. He has spent his entire career with the Mobil Oil Corporation.

He began observing Soviet space efforts in April of 1961, with the launching of Vostok I. He then began a correspondence with several cosmonauts and worked in the space exhibit section of the Soviet pavilion at Expo 67. Crook specializes in data on cosmonauts, the Zond lunar program and Vostok spacecraft design. In addition, he observes the Soviet military (with an emphasis on armor design and tactics), history and politics. The other space programs he observes are NASA, ESA and Arianespace. He has written eight articles for *SpaceWorld* magazine: "The Soviet Cosmonaut Class of 1965: 'The Little Klimuki's'"; "Zond: The Soviet Manned Moon Program"; "The Unmanned Luna Program"; "Gagarin, The First"; "Five Time Hero"; "Of Space Walks and Wolves: The Incredible Flight of Voskhod II"; "The Soviet Cosmonaut Team, A Book Review" and "Are The Profits Really There?" In addition, he has

60 non-Soviet-related publications.

Crook is a member of the National Eagle Scout Association, the Mineralogical Society of America, the Mineralogical Association of Canada and the National Space Society. He married Virginia Davis in 1975 and they have two children: Gretchen Leigh Crook and Travis Wilson Crook.

Name: **Dave Dooling** Years Experience: **18**

Occupation: **Consultant/Writer**

Areas of Expertise

General Observations: All Soviet space efforts.

Other Space Programs Observed: NASA.

Performs: Freelance Journalism, Public Speaking, Private Consulting.

Relevant Work Experience

Employer	Job Title	Dates
Huntsville (Ala.) Times	Science Editor	1977-1985
Essex Corporation	Research Associate	1985-1986
Space & Rocket Center	Mgr., Program Development	1986-1988
D^2 Associates	Consultant	1988-Present

Awards and Honors

National Space Club Press Award	1980
National Space Club Goddard History Essay	1982
ASME Ralph Coats Roe Medal	1985
STC Award of Distinguished Technical Communication	1988

Contact Information

By Phone

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By Mail

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Profile -- Dave Dooling

"My interests in this field are twofold. First, I am interested in all space projects and like to give my readers a balanced view of world space projects. Second, I like to monitor the diverse egos and views of Soviet watchers and try to figure out where the truth lies among their opinions"

Born on March 26, 1950, award winning science reporter and author Dooling attended Norview High School in Norfolk, VA. He has also studied at the Florida Institute of Technology, Old Dominion University and the University of Alabama in Huntsville.

He gained an international reputation for his work as the science editor of *The Huntsville Times*. While in this position, he earned the National Space Club Press Award in 1980; the National Space Club Goddard History Essay in 1982; and the American Society of Mechanical Engineers Ralph Coats Roe Medal in 1985. In 1985 he joined the Essex Corporation as a research associate, and in 1986 joined the Alabama Space and Rocket Center as manager, program development, for U. S. Space Camp/Space Academy. He left the Space and Rocket Center in 1988 and formed D^2 Associates, a consulting firm. His work earned him the Society for Technical Communications' Award for Distinguished Technical Communication in 1988.

He began observing Soviet space efforts in 1971 out of curiosity, and has continued for the reasons given at the start of this profile. A self-described generalist on Soviet space efforts, Dooling was co-chairman of **Red Star 2000**, a conference on Soviet efforts held in Huntsville in 1988.

In addition to his news reporting, Dooling is a co-author of three books:

Space Travel: A History (with Ordway and von Braun), *Huntsville: A Pictorial History* (with Sharon Dooling) and *Science in Orbit, The Shuttle and Spacelab Experience: 1981-1986* (with Valerie Neal, Tracy McMahon and Charlotte Shea). He has contributed a chapter to the *Illustrated Encyclopedia of Space Exploration*, two chapters to the *Illustrated Encyclopedia of Space Technology*, and the annual space entries for the *Encyclopedia Britannica*. He was also editor of *Shuttle to the Next Space Age* (AIAA, 1980) and edits the CANOPUS on-line newsletter for the AIAA.

Dooling is a member of the AIAA and the National Space Club.

Name: **Robert L. Forward** Years Experience: **30**

Occupation: **Physicist/Writer**

Areas of Expertise

General Observations: Physics, gravitation, exotic phenomena and advanced propulsion.

Performs: Freelance Journalism, Public Speaking, Private Consulting.

Education

College	Degree	Major
University of Maryland	BS	Physics
UCLA	MS	Applied Physics
University of Maryland	Ph.D	Gravitational Physics

Relevant Work Experience

Employer	Job Title	Dates
Hughes Aircraft	Senior Scientist	1956-1987
Forward Unlimited	Consultant	1987-Present

Contact Information

By Phone

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By Mail

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USA

Profile -- Robert L. Forward

Robert L. Forward doesn't consider himself a Soviet space observer in the normal sense -- in fact he states that he isn't interested in most aspects of their program. However, he is included in this directory due to his interest in Soviet physics; gravitation research; exotic phenomena; and advanced propulsion, particularly antimatter and solar sails.

Forward was born on August 15, 1932 and attended Montgomery Blair High School in Silver Spring, Maryland. He earned a BS in physics from the University of Maryland, an MS in applied physics from UCLA and a Ph.D in gravitational physics from the University of Maryland. For his Ph.D, he built and operated the first bar antenna for detecting gravitational radiation. That antenna is now on display in the Smithsonian.

He worked for the Hughes Aircraft Company Research Laboratories in Malibu, California (1956-1987), and retired as the Senior Scientist to the Director. His work included building and operating the world's first laser gravitational radiation detector and inventing the rotating gravitational mass sensor. He was awarded 18 patents for his work and published more than 70 technical papers. Forward has also worked on contracts for the Air Force Astronautics Laboratory to look for new energy sources to produce breakthroughs in space power and propulsion. This has led to papers and/or contract reports on antiproton annihilation propulsion, laser beam and microwave beam interstellar propulsion, negative matter propulsion, light-levitated perforated sail communication satellites, and a method for obtaining electrical energy from vacuum fluctuations.

He has written more than 75 popular science articles for publications such as the *Encyclopedia Britannica Yearbook*, *Omni*, *New Scientist*, *Science Digest*, *Analog* and *Galaxy*. He has written two science fact books, *Future Magic* and *Mirror Matter* (with Joel Davis). In addition, he has written four science fiction novels.

Forward is a Fellow of the British Interplanetary Society, an Associate Fellow of the American Institute of Aeronautics and Astronautics, and a Senior Member of the American Astronautical Society. He is a member of the American Physical Society, Sigma Xi, Sigma Pi Sigma, and the Science Fiction Writers of America.

Name: **Ralph Gibbons** Years Experience: **29**
Occupation: **Teacher**

Areas of Expertise

General Observations: All Soviet space efforts.
Other Soviet Areas Observed: National politics and military.
Other Space Programs Observed: All.
Performs: Freelance Journalism, Art/Drawing.

Education

College	Degree	Major
Open University	BA	Mathematics

Contact Information

By Phone

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Profile -- Ralph Gibbons

Ralph Gibbons doesn't consider any one thing to highlight his life and work. Rather he feels "a constant satisfaction of and in the analysis of the Soviet space effort."

Born on May 29, 1938, he earned a BA in mathematics from the Open University, attended a three-year teacher-training course and currently teaches at the Tupton Hall School.

Gibbons began observing Soviet space efforts around 1960, due to a previous interest in astronomy and because it was a challenge to find out what the Soviets were doing. He also observes Soviet national politics and military. He observes space programs of all other nations as well. His drawings have appeared in the *Handbook of Soviet Lunar & Planetary Exploration*, the *Handbook of Soviet Manned Spaceflight*, *The Encyclopedia of Soviet Spacecraft*, *Flight International*, *SpaceFlight* and the *Journal of the British Interplanetary Society* (*JBIS*). He has also had articles published in *SpaceFlight* and *JBIS* on such topics as anti-satellite weapons (ASATs), launch vehicles and cosmonaut crews. Gibbons has spoken at several British Interplanetary Society Soviet Space Forums.

Gibbons is a Fellow of the British Interplanetary Society.

Name: **D. G. Hawkins** Years Experience: **22**
Occupation: **Chemist**

Areas of Expertise

General Observations: All Soviet space efforts.

Areas of Specialization: Manned activities, recoverable payloads and observation of vehicles.

Other Soviet Areas Observed: Aviation.

Other Space Programs Observed: NASDA, Arianespace, Chinese and NASA.

Performs: Public Speaking.

Education

College	Degree	Major
London University	BSc	Chemistry

Contact Information

By Mail
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England

Profile -- D. G. Hawkins

D. G. Hawkins is a member of the Kettering Group, an organization which performs visual and electronic observations of Soviet spacecraft. It is not surprising therefore that he considers the highlights of his work to be the visual observation of several Soviet spacecraft on their first two orbits, the acquisition of radio signals on the first orbit of several satellites, the discovery of the loss of attitude stabilization of Feng Yun One (the first Chinese weather satellite), and visual observation of Apollo 8 on its way to the moon.

Hawkins was born on July 3, 1940 and attended Letchworth Grammar School in Letchworth, Herefordshire, England. He earned a BSc in chemistry from London University.

He began observing Soviet space efforts in July of 1967, when he mastered the techniques for graphically predicting satellite passes for visual observation. In his own words, "There were several interesting Russian payloads and rocket bodies being followed by the British Royal Society at the time." He specializes in all Soviet manned activities and recoverable payloads, and makes radio and visual observations of Soviet spacecraft on a regular basis. Besides space efforts, he also observes aviation.

In addition to Soviet space efforts, Hawkins observes NASA, Arianespace, NASDA and the Chinese space programs. He has lectured on the Soviet space program, and given presentations on "Listening to Satellites" and "How to Observe Soyuz Spacecraft."

Hawkins is a former Fellow of the British Interplanetary Society.

Name: **Dean Ing** Years Experience: **32**

Occupation: **Novelist**

Areas of Expertise

General Observations: All Soviet space efforts.

Areas of Specialization: Solid rocket design, materials development, human engineering, long-range prediction/planning.

Other Soviet Areas Observed: Regional/national politics, intelligence services.

Other Space Programs Observed: NASA (advanced propulsion, e.g. laserboost).

Performs: Freelance Journalism, Public Speaking.

Education

College	Degree	Major
Fresno State	BA	Speech/TV
San Jose State University	MA	Speech
University of Oregon	Ph.D.	Speech/Communication Theory

Also, participant in workshops on future weapons and small arms, 1986 - 1987.

Relevant Work Experience

Employer	Job Title	Dates
Lockheed/Sunnyvale	Senior Research Engineer	4/65 - 8/70
United Technology	Proposals Engineer	10/62 - 2/65

Contact Information

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Dean Ing, Ph.D.
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USA

Profile -- Dean Ing

"Harry Stine got himself blackballed for telling us on TV that anybody who'd been monitoring those guys knew they were about to put up a satellite. I figured anything that got Harry's ass in that narrow a crack had to be worth following. Q. E. D."

This is how Dean Ing -- aerospace engineer, designer, inventor, novelist, and professor -- describes the events that caused him to begin observing Soviet space efforts in September 1957.

Born on June 17, 1931, Ing attended high school in Austin and Lubbock, Texas. He studied chemical engineering at Texas Tech and radio/speech at Texas Christian University. He earned his BA in Speech-TV from Fresno State, his MA in speech at San Jose State University, and his Ph.D. in speech/communication theory from the University of Oregon. In addition, he attended Parks Air College in East St. Louis, the U. S. Air Force one-year flight engineer school, and various jet engine/A/C short schools.

After serving in the Air Force, he worked for a while at North American, which later became Rockwell, as an aircraft inspector. From there, he worked as a technical editor at Gilfillan Electronics (9/56 - 8/57), and as a technical writer and designer for Aerojet-General (10/57 - 2/62). He was hired by United Technology as a proposals engineer (10/62 - 2/65) and was a senior research engineer for Lockheed/Sunnyvale (4/65 - 8/70). In addition to these jobs, he has also been an assistant professor of communications in the Missouri State University system, where he taught Soviet media as a part of a media history course.

As a novelist, his works have ranged from mainstream thrillers (*Blood of Eagles*) and science fiction (*Anasazi*), to the practical (*The Chernobyl Syndrome and How To Survive It*). His first novel, *Soft Targets* (Ace Books, 1979), which dealt with Arab terrorists taking and using hostages against the United States, preceded the Tehran crisis by six weeks. Non-fiction works include *Mutual Assured Survival* (Baen Books, 1984) with Jerry Pournelle, and he was the sole author of an academic text for undergraduates in engineering -- *Undersea Pipeline: Verification of a Stress Analysis* (Stanford University, 1969).

Ing specializes in coverage of Soviet solid rocket design, materials development, human engineering, and long range prediction/planning. He also observes regional/national politics and the intelligence services (GRU, KGB). The latter have provided information for several of his fiction works, while the other areas were used in a non-fiction book written with Dr. Leik Myrabo, *The Future of Flight* (Baen Books, 1985).

In addition to his Soviet work, he observes advanced propulsion efforts (e.g., laserboost) at NASA, national laboratories and academic centers.

Ing has also been a panel member for a U. S. Air Force workshop on future weapons (Wright-Patterson AFB, 1986) and a Department of Defense workshop on small arms (Battelle/Seattle, 1987). He was also a panel member for a Canadian network program on the Strategic Defense Initiative (SDI) and Civil Defense (1983), and an Ashland area program on detente that included several Soviet physicians (1988).

His public speaking has included the following subjects: writing, future transport, SDI, civil defense, survival, media theory, sportscar

design/development/ racing, media history and theory, terrorism, and future weapons. He has also taken part in numerous non-Soviet broadcasts.

Dean is a member of the Science Fiction Writers of America (SFWA) and the National Space Society. He won first prize in a 1969 Holt-Rinehart-Winston contest for a scholarly paper on creative feedback.

He lists five events as constituting the highlights of his work. The first was when an employee leaked the fact that he, while being paid as a technical writer and used as a designer, was near the top of Aerojet's list of the most creative of its 26,000 employees. Second was when the 'Magnum' GT, a car he designed and built, was the center exhibit of a prototype vehicle exhibition in the San Francisco area. The third was when his interdisciplinary dissertation validated field observers in proxemics, and fourth was when his first novel, *Soft Targets*, foreshadowed the Tehran crisis by six weeks. He was a runner-up for the Hugo and Nebula awards in 1979, and his novel, *The Ransom of Black Stealth One*, is scheduled for 100,000 hardback copies upon release in 1989.

Name: **Jacob W. Kipp** Years Experience: **17**
Occupation: **Research Analyst**

Areas of Expertise

General Observations: All Soviet space efforts.
Areas of Specialization: History.
Other Soviet Areas Observed: Military, naval operations and aviation.
Performs: Public Speaking.

Education

College	Degree	Major
Shippensburg State College	BS	Secondary Education
Pennsylvania State U.	MA	History
Pennsylvania State U.	Ph.D	History

Relevant Work Experience

Employer	Job Title	Dates
Soviet Army Studies Office	Senior Analyst	1986-Present

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Profile -- Jacob W. Kipp

Jacob W. Kipp has a job many other Soviet analysts can only dream about -- senior analyst for the Soviet Army Studies Office at Ft. Leavenworth, Kansas. His job requires that he study the Soviet Union.

Born on March 6, 1942, Kipp attended Middletown Area High School in Middletown, Pennsylvania. He earned a BS in secondary education from Shippensburg State College, and a MA and Ph.D in history from Pennsylvania State University. Since that time, he has served as a professor of history at several universities and has been at Ft. Leavenworth since 1986.

Kipp began observing Soviet space efforts in 1972 as an outgrowth of his research into Soviet military and naval history. He specializes in the history of the Soviet program and also observes Soviet military, naval operations and aviation. He has published more than 40 articles or papers, the majority dealing with some aspect of the Soviet Union. In addition, he has made numerous public presentations.

Kipp is a member of the American Historical Association, the American Association for the Advancement of Slavic Studies, the Central Slavic Conference, the U. S. Naval Institute, the U. S. Commission for Military History, the International Commission for Military History, the American Military Institute and Phi Alpha Theta. He has also been awarded National Defense Education Act, Bureau of General Research, Kosciuszko Foundation and Fulbright-Hays fellowships. He is married to Dr. Maia A. Kipp and they have one child, Alexander.

Name: **Saunders B. Kramer** Years Experience: **31**
Occupation: **Physical Scientist**

Areas of Expertise

General Observations: All Soviet space efforts, but with emphasis on manned.

Other Soviet Areas Observed: National politics, aviation.

Other Space Programs Observed: All.

Performs: Freelance Journalism, Public Speaking, Private Consulting.

Education

College	Degree	Major
Polytechnic Inst. of Brooklyn	BS	Physics
Polytechnic Inst. of Brooklyn	MS	Applied Math
Polytechnic Inst. of Brooklyn	Adv. Stdy.	Applied Math

Also, courses in space science, technology, and exploration; exobiology: 1958 - 1964.

Relevant Work Experience

Employer	Job Title	Dates
Lockheed/Sunnyvale	Senior Adv. Sys. Staff Engineer	3/55 - 4/71

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Profile -- Saunders B. Kramer

By his own admission, Saunders Kramer has been interested in space "forever." His master's thesis at Brooklyn Polytechnic was on rocket flight and he has long been interested in the possibilities of life elsewhere.

Kramer began observing the Soviet program in August of 1957 after the announcement of the operation of a ballistic missile. He states, "I calculated that same missile with appropriate change would be able to launch a satellite, but did not recognize how soon it would occur." It should be emphasized that his Soviet studies are not related to his job with the Department of Energy.

Born on October 30, 1920, Kramer attended both high school and college in Brooklyn. He also took courses at the University of California, Berkeley extension in space science, technology and exploration; and exobiology.

He was elected a fellow of the American Astronautical Society in 1980 for his pioneering work in space station design and studies. Kramer conceived, initiated and directed the first realistic engineering study of a manned space station in the U. S. (12/58) and received the first patent issued in the U. S. (number 194,444) for the design of a manned station as a part of 1960 study/design at Lockheed.

Kramer's interest in Soviet space activities extends over the entire spectrum of operations, but focuses on manned activities. He observes national politics as it relates to space activity and has some interest in Soviet aviation. He maintains files on all launches by all nations to Earth orbit and beyond.

He has taken part in numerous radio and television broadcasts, including

some 20 appearances on national television. His public speaking (more than 200 lectures) has included the following subjects -- Soviet space activity, bioastronautics, and interplanetary exploration -- to the public, technical societies, and various branches of the Department of Defense.

Kramer is a former member of the Board of Directors of the American Astronautical Society, former head of the San Francisco Bay Area Section and is presently a member of the board of directors of the Washington D. C. section. He is also a fellow of the British Interplanetary Society, a member of the American Association for the Advancement of Science, a charter member of the Planetary Society and a life member of the National Space Society.

He states that four things represent the highlights of his life and work. The first is that he was responsible for the first series of serious space station studies in the U. S. The second is that he maintains what he considers to be one of the most complete files on Soviet space activities anywhere. Indeed, he feels that "It may be the best there is outside the intelligence community." The third is that the Smithsonian Institution's Air and Space Museum's archives requested his papers and letters in the field of Astronautics, because of his pioneering work in that area. The final thing is that large classes he taught in advanced systems design and engineering at Lockheed from 1950-1972 received full college credit at area Universities.

Kramer also has two manuscripts prepared. The first is part of a multi-volume set and is a history of Soviet space activity from 1957-1975. The second is a novel about a Soviet landing on Mars titled *The Hundred Billion Ruble Trip.*

He is married to Elissa Theresa Fuoco and they have two children: Saunders B. Kramer, Jr. and Peter Adrian Kramer. In addition to his space

observations, Kramer is an "ardent" opera fan, has a highly focused stamp collection and enjoys reading crisis, science fiction, unusual adventure, and political novels and listening to classical music.

Name: **Leik N. Myrabo** Years Experience: **17**

Occupation: **Professor/Scientist**

Areas of Expertise

General Observations: Beamed energy and transatmospheric propulsion.

Performs: Private Consulting, Public Speaking.

Education

College	Degree	Major
Iowa State University	BS	Aerospace Eng.
UC San Diego		Ph.D Engineering
Physics		

Relevant Work Experience

Employer	Job Title	Dates
UCSD Energy Center	Research Assistant	1972-1976
Physical Sciences, Inc.	Principal Scientist	1976-1977
W. J. Schafer Assoc.	Senior Technical Staff	1977-1980
The BDM Corp.	Scientist/Consultant	1980-1983
Rensselaer Polytechnic	Assistant Professor	1983-Present

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Profile -- Leik N. Myrabo

Leik N. Myrabo considers himself to be a Soviet space observer only in the areas of beamed energy propulsion, space power systems, and high energy laser technology.

Born on September 20, 1944, Myrabo attended Washington Senior High School in Sioux Falls, South Dakota, earned a BS in aerospace engineering from Iowa State University and a Ph.D. in engineering physics from the University of California at San Diego. He served as a research assistant at the Energy Center of UCSD (1972-76), principal scientist at Physical Sciences, Inc. (1976-77), senior technical staff at W. J. Schafer Associates, Inc. (1977-80), scientist/consultant at The BDM Corporation (1980-83) and assistant professor in the department of mechanical engineering at Rensselaer Polytechnic Institute.

He began observing Soviet space efforts in the fall of 1972, due to his interest in propulsion. He specializes in advanced transatmospheric propulsion, space power systems and beamed energy propulsion. He authored *The Future of Flight* (with Dean Ing) in 1985 and is a scientific advisor to a one-hour television special titled *Future Flight.* He has written more than 50 papers or articles.

Myrabo is a member of Sigma Gamma Tau (aerospace engineering honorary society), Tau Beta Pi (engineering honorary society), the American Institute of Aeronautics and Astronautics (AIAA) and the National Space Society.

Name: **Dennis R. Newkirk** Years Experience: **4**
Occupation: **Engineer**

Areas of Expertise

General Observations: Space technology and manned operations.
Other Space Programs Observed: NASA.

Education

College	Degree	Major
Purdue University	AAS	Electrical Eng. Technology
Purdue University	BS	Electrical Technology

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Profile -- Dennis R. Newkirk

Dennis R. Newkirk began his Soviet observations in 1985 out of a desire to update a spaceflight reference book he owned. As he puts it, "After researching Soviet activities from '77 to '85, I was hooked."

Born on April 14, 1964, Newkirk attended Columbus East High School in Columbus, Indiana. He earned an Associate of Applied Science in Electrical Engineering Technology and a Bachelor of Science in Electrical Technology from Purdue University. Currently, he works as an engineer for E-Systems, Melpar Division.

He specializes in both the technology of spaceflight and manned activities. Outside the Soviet program, he observes NASA efforts. He has written the *Almanac of Soviet Manned Spaceflight* (Gulf Publishing, 1989), and "Repair of Salyut 7" in the IEEE *Aeronautical and Electrical Systems* magazine in February of 1988.

Newkirk is a member of the International Electronic and Electrical Engineers (IEEE), the National Space Society, and the British Interplanetary Society.

Name: **James E. Oberg** Years Experience: **32**
Occupation: **Spaceflight Operations Engineer**

Areas of Expertise

General Observations: All Soviet space efforts.

Areas of Specialization: Records and statistics, manned operations, history and shuttle.

Other Space Programs Observed: All.

Performs: Freelance Journalism, Public Speaking, Private Consulting.

Education

College	Degree	Major
Ohio Wesleyan University	BS	Mathematics
Northwestern University	MS	Math/Astrodynamics
University of New Mexico	MS	Computing Sciences

Relevant Work Experience

Employer	Job Title	Dates
U. S. Air Force	Computer Analyst	1970-1978
McDonnell-Douglas	Mission Controller	1978-1986
Rockwell Space Ops.	Mission Controller	1986-Present

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Profile -- James E. Oberg

To the public-at-large, James Oberg is probably the best known Soviet observer. He has been a frequent commentator in the media and has written such widely known books as *Red Star in Orbit* and *Mission to Mars*. Among his skills, he places at the top of his list "IMAGINATION and 'Divergent Thinking'."

Born on November 7, 1944, Oberg earned a BA with honors in mathematics from Ohio Wesleyan University, an MS in applied math/astrodynamics from Northwestern (where he was a NASA trainee) and an MS in computing sciences from the University of New Mexico. He served in the U. S. Air Force (1970-78) at the Air Force Weapons Laboratory, the DOD Computer Institute and the Johnson Space Center. He then worked for McDonnell-Douglas (1978-86) as a part of the mission control support operations and on a USAF Space Command contract for a shuttle control center in Colorado. Following Challenger, he returned to mission control as an employee of the Rockwell Space Operations Company (1986-present).

Oberg began observing Soviet space efforts in 1957, because in his words the "space age was aborning." He specializes in records and statistics, manned operations, history and shuttle. He also observes glasnost in general and all other space programs of all nations. It should be made very clear, however, that his Soviet work is strictly his own and does not represent any employer or NASA.

In addition to the books mentioned above, he has written *New Earths, UFO's and Outer Space Mysteries, New Race for Space, Pioneering Space*

(with Alcestis Oberg), and *Uncovering Soviet Disasters*. He has taken part in numerous broadcasts and interviews, and written a large number of articles for a variety of publications.

Oberg is married to Alcestis R. "Cooky" Oberg. They have two children, Gregory and John.

Name: **C. Blake Powers** Years Experience: **7**

Occupation: **Journalist**

Areas of Expertise

General Observations: All Soviet space efforts.

Areas of Specialization: Political ramifications and military operations.

Other Soviet Areas Observed: All.

Other Space Programs Observed: All.

Performs: Freelance Journalism, Private Consulting, Photography, Public Speaking.

Education

College	Degree	Major
Auburn University	n/a	English
Columbia College Chicago	BA	Journalism
UT Knoxville	MS	Communications

Relevant Work Experience

Employer	Job Title	Dates
SpaceWorld	Correspondent-at-Large	1983-1986
ConFederation	Manager, Media Relations	1986
SSI	Senior Science Writer	1985-1987
Powers Communications	Freelancer	1980-Present

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Profile -- C. Blake Powers

Born on July 15, 1960, Powers attended Stratford Academy in Macon, Georgia. He attended Auburn University where he majored in English and minored in engineering and psychology, before transferring to Columbia College Chicago and earning a BA (with honors) in journalism. His internship was served in the photography department of *Playboy* magazine. He has been a freelance reporter in both print and broadcast media since 1980, and was correspondent-at-large for *SpaceWorld* magazine (1983-86) and served as senior science writer for Schneider Services International at the U. S. Air Force Arnold Engineering Development Center (1985-87).

He began observing Soviet space efforts in 1982 after reading several books on the program. He has written about those efforts for *SpaceWorld* and has lectured extensively on the Soviet program. He specializes in political effects on the program and military operations. He observes all other aspects of the Soviet Union and all other space programs. In addition to the Soviet space program, he has lectured on the Japanese program, space medicine, space war, space exploration/colonization, self-replicating robotics, computers, weapons, and security.

He has attended a workshop on teaching technical and policy aspects of the nuclear arms race and is a graduate of the Space Academy. He has also performed threat identification and intentions analysis.

Powers has earned the Eagle Scout award with bronze palm, the God and Country award, the 50 miler award, the Space Academy's Right Stuff

Award (1986), and was a Bickel Scholar at UT Knoxville (1988-89). His photography won second place for professional photojournalism at the 1982 Auburn University Sigma Delta Chi statewide exhibition.

Powers is a member of the New York Academy of Sciences, the Aviation/Space Writers Association, the American Association for the Advancement of Science, the National Eagle Scout Association and Nikon Professional Services. He is an associate member of the National Association of Science Writers and the U. S. Naval Institute.

Name: **M. Leroy Spearman** Years Experience: **27**
Occupation: **Aerospace Technologist**

Areas of Expertise

General Observations: All Soviet space efforts.

Areas of Specialization: Aerodynamics.

Other Soviet Areas Observed: Military, education, politics, aviation.

Other Space Programs Observed: NASA

Education

College	Degree	Major
Auburn University	BS	Aerospace Engineering

Relevant Work Experience

Employer	Job Title	Dates
NASA-Langley	Aerospace Technologist	1944 - Present

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Profile -- M. Leroy Spearman

As a recognized authority in a variety of aerospace fields, M. Leroy Spearman has long been a consultant to a variety of U. S. governmental agencies on the status of foreign technology through the assessment of foreign aircraft and missiles. His work in high-speed and supersonic aircraft designs has been incorporated in virtually all U. S. supersonic aircraft.

Born on September 17, 1921, he attended Fairfield High School in Fairfield, AL. He then earned a BS in Aerospace Engineering from Auburn University in 1943 and went to work for what is now the Langley Research Center of NASA in 1944.

He began research studies in 1945 on the use of sweptback wings for high-speed aircraft, and directed early studies of canard-type missiles and aircraft. Other research, including the first supersonic studies of the variable wing sweep concept and investigations of supersonic commercial transport aircraft, led to aerodynamic design features used in virtually all U. S. supersonic aircraft.

Spearman is the author of some 232 technical publications. He has received NASA's Exceptional Service Medal, SST Group Achievement Award, Patent Incentive Award and Lightweight Fighter Prototypes Support Team Group Achievement Award. He has also received NASA-Langley's Special Achievement Award, Special Service Award for Exceptional Scientific Achievement and Outstanding Achievement Award.

He began observing the Soviets in 1962 out of scientific interest. Since that time, he has served as a consultant to the intelligence community including

the Army Missile and Space Intelligence Center, the Army Foreign Science and Technology Center, the Air Force Foreign Technology Division and the Naval Technical Intelligence Center. Besides speaking to various civic groups and clubs, Spearman has given numerous presentations at NASA and technical society meetings and been a guest lecturer at the Naval Post Graduate School, the National War College, the Air Force Soviet Awareness School, the University of Tennessee Space Institute, Auburn University, Purdue University, the University of Texas, and the American Institute of Aeronautics and Astronautics (AIAA) Soviet Threat Technology Seminars.

Spearman is an associate fellow of the AIAA, and is a member of the American Defense Preparedness Association, the Air Force Association, the U. S. Naval Institute, the American Helicopter Society, the Auburn University Alumni Engineering Council and the Virginia Academy of Science.

Name: **G. Harry Stine** Years Experience: **36**
Occupation: **Consulting Engineer/Author**

Areas of Expertise

General Observations: All Soviet space efforts.
Other Soviet Areas Observed: All.
Other Space Programs Observed: All.
Performs: Freelance Journalism, Public Speaking, Private Consulting.

Education

College	Degree	Major
Colorado College	BA	Physics

Relevant Work Experience

Employer	Job Title	Dates
U. S. Navy	Chief, Range Ops. Div. White Sands	1955-1957

G. Harry Stine is the author of more than 30 books on science and astronautics. He is a former vice president of the L-5 Society, former president and founder of the National Association of Rocketry, and a director of the Arizona Pilots Association. He has also served as a consultant to CBS News and Metromedia Radio News.

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Source Computer Network: address BCG096

Profile -- G. Harry Stine

G. Harry Stine is considered by many to be the Dean of Soviet observers. After all, he was the person who was fired by the Martin Company on October 5, 1957, for saying to United Press International something that he had previously said in a book: "That the USSR has an on-going space program and if the USA doesn't do something we're in deep trouble."

Born on March 26, 1928, Stine earned a BA in physics from Colorado College in 1952. He has worked as the chief of the controls and instrumentation section at the White Sands Proving Grounds (1952-55) and as the chief of the range operations division of the U. S. Naval Ordnance Missile Test Facility at White Sands (1955-57). He then worked as a design specialist for the Martin Company (1957). In addition to numerous other aerospace positions, he has served as a science reporter for Metromedia Radio News (1968), as a science consultant for CBS news (1969) and as a consultant on astronautical history for the National Air and Space Museum (1965 - present).

Besides having edited and/or published six periodicals, Stine has written more than 20 non-fiction books, more than 15 fiction novels (often under the pen name Lee Correy), more than 140 science fact articles, more than 20 science fiction articles, and more than 25 technical papers; he has contributed to 19 anthologies or books, and testified before Congress three times on space exploration/exploitation. He has also taken part in numerous print and broadcast interviews relating to space.

He is the recipient of the Silver Medal from the U. S. Army Association (1967) and the Paul Tissandier diploma from the Federation Aeronautique

Internationale (1985).

Stine began observing Soviet space efforts in 1953. He covers all aspects of the Soviet space program, the Soviet Union and all other space programs.

He is a fellow of the Explorers Club, the British Interplanetary Society, and an associate fellow of the AIAA. He is a member of the New York Academy of Sciences, National Association of Rocketry, National Fire Protection Association, Aircraft Owners and Pilots Association and the Arizona Pilots Association.

Name: **Kevin D. Stubbs** Years Experience: **5**
Occupation: **Historian**

Areas of Expertise

General Observations: All Soviet space efforts.

Areas of Specialization: Military activities and weaponization.

Other Soviet Areas Observed: Military doctrine, military history, global modeling research, science and technology policy issues and military force structure.

Education

College	Degree	Major
Texas A&M University	BA	History
Wichita State University	MA	International Rel.

Relevant Work Experience

Employer	Job Title	Dates
USAF	Missile Combat Crew Commander	1977-1980
NL Atlas Bradford	Process Control Technician	1981-1982
Center for Strategic Tech.	Research Associate	1983-Present

Awards and Honors

Sanders Research Paper Competition 1988

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Profile -- Kevin D. Stubbs

Kevin Stubbs attributes his broad range of interest in Soviet space efforts to working on government contracts, while taking courses for his Ph.D. in European military history at Texas A&M University.

Stubbs was born February 1, 1954, and attended Texas Senior High in Texarkana, Texas. He earned his BA in history from Texas A&M and an MA in international relations from Wichita State University. While in the Air Force, he served as a missile combat crew commander and was a process control technician for NL Atlas Bradford (2/81-9/82). He then became a research associate at the Center for Strategic Technology at Texas A&M (4/83-present). He has authored or co-authored some ten papers or articles on military strategy and technology. Stubbs was awarded first place in the Sanders Research Paper Competition in 1988.

He began to observe Soviet space efforts in December 1984, for the Department of Defense. He specializes in military space activities and weaponization. In addition, he observes military doctrine, military history, global modeling research, science and technology policy issues and military force structure. Stubbs has spoken to an engineering convention on the Soviet Air Defense Initiative threat (the Soviet version of SDI) and presented a paper at Aerotech 87.

Stubbs is a charter member of the Brazos Valley Chapter of the American Society of Military Engineers, a life member of the Air Force Association, a member of the U. S. Naval Institute, and a Major in the Air Force Reserve.

Name: **Richard E. Thomas** Years Experience: **38**
Occupation: **Teacher/Researcher**

Areas of Expertise

General Observations: All Soviet military and space efforts.

Areas of Specialization: Aircraft, missile and satellite design.

Other Soviet Areas Observed: Science and technology, and military doctrine.

Other Space Programs Observed: NASA, ESA.

Performs: Freelance Journalism, Private Consulting, Public Speaking.

Education

College	Degree	Major
Ohio State University	B.Aero.E.	Aerospace Engineering
Ohio State University	BA	Mathematics
Ohio State University	MS	Aerospace Engineering
Ohio State University	Ph.D	Aerospace Engineering

Relevant Work Experience

Employer	Job Title	Dates
U. S. Air Force	Aeronautical Engineer	1951-1952
Ohio State University	Research Associate	1952-1964
Texas A&M University	Director, Ctr. Strategic Tech.	1979-Present

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Profile -- Richard E. Thomas

Richard E. Thomas considers the highlights of his life and work to be contributions made to research on hypersonic aerodynamics and the Soviet military space program, and representing the U. S. in trilateral discussions with representatives of the Soviet Union and Great Britain.

Born on December 29, 1925, Thomas attended Logan High School in Logan, Ohio. He earned a B. Aero. E. in aerospace engineering, a BA in mathematics, an MS in aerospace engineering and a Ph.D in aerospace engineering from Ohio State. He was an aeronautical engineer for the U. S. Air Force (1951-52), a research associate for Ohio State (1952-64), a professor of aerospace engineering at Texas A&M University (1964-69), department head for aerospace engineering at the University of Maryland (1969-71) and associate dean for aerospace engineering at Texas A&M University (1971-79). He is currently the director of the Center for Strategic Technology at Texas A&M University.

Thomas began observing Soviet space efforts in 1951, when he was employed at what is now the Foreign Technology Division of the U. S. Air Force. He specializes in aircraft, missile and satellite design, and also observes Soviet science and technology, and military doctrine. In addition, he observes NASA and ESA. He currently has several Soviet-related publications, including the following six: "Long Wave Infrared Research in the Soviet Union," "Soviet Views on Military Operations in Space," "The Soviet Space Theater of War (TV)," "Long Wave Infrared Research in the Soviet Union: Silicon and Germanium Based Detectors," "Surfaced-Based Layered Defense by the Soviet

Navy" and "Signal Processing Research in the Soviet Union." In addition to these, he has published numerous articles or papers, taken part in broadcast interviews and spoken extensively.

Thomas is a member of the American Society for Engineering Education, the Air Force Association, Tau Beta Pi, Phi Kappa Phi, and Sigma Gamma Tau. He is also an Associate Fellow of the American Institute of Aeronautics and Astronautics.

Name: **Anne van den Berg** Years Experience: **32**
Occupation: **Teacher**

Areas of Expertise

General Observations: All Soviet space efforts.

Areas of Specialization: Manned space flight.

Other Space Programs Observed: NASA, ESA, NASDA.

Performs: Freelance Journalism, Private Consulting.

Education

College	Degree	Major
seminary school	MS (equivalent)	Pedagogy (equivalent)

Organizations

Fellow, British Interplanetary Society

Contact Information

By Mail
Mr. A. van den Berg
Peulenstraat Zuid 15
3371 AL HARDINXVELD-GIESSENDAM
The Netherlands

Profile -- Anne van den Berg

In order to prevent embarrassment to anyone contacting Mr. van den Berg, Anne is a Frisian male's name. His interest in space began in primary school with a lecture about the solar system and led to his first "writing." The launch of Sputnik started his private files on spaceflight, resulting in what he describes as "A huge private collection with entries to most aspects of spaceflight."

During the Apollo era, he reduced his areas of research to that of manned spaceflight, with unmanned and planetary efforts being "side-tracked." He has recorded the biographies and careers of all known, or candidate, astronauts.

Van den Berg was born on May 20, 1944 and attended Dordrecht High School in Dordrecht. After graduation, he attended a seminary in order to become a teacher. Finishing his education in 1966, he taught in primary schools until discovering what he refers to as "my permanent sphere of action" -- instructing teenagers at a vocational school. There he prepares them for industrial occupations and/or secondary technical education and teaches general non-technical subjects.

He has written on various items and surveys in Dutch spaceflight magazines, mostly dealing with crew policies, and has been a contributing editor for *Meteor* magazine (1974-1979) and a contributing editor for *Spaceview* magazine since 1979. He is editor-in-chief for *The Space Explorers Lexicon* and has privately issued biographies and career listings since 1986.

He also wrote "The Intercosmos Programme" in the *Journal of the British Interplanetary Society* (1982); "Salyut-6-Cosmonauts" in *Spaceflight* (1982); and "Classifications of Humans in Space" in *Spaceflight* (1982-1983).

Mr. van den Berg is a Fellow of the British Interplanetary Society, and lectures and writes in English and Dutch.

Name: **Charles P. Vick** Years Experience: **28**
Occupation: **Analyst**

Areas of Expertise

General Observations: All Soviet space efforts.

Areas of Specialization: Engines, lunar program, launch vehicles and facilities.

Other Space Programs Observed: All.

Performs: Freelance Journalism, Public Speaking, Art/Drawing, Photography, Private Consulting.

Education

College	Degree	Major
Old Dominion University	AAS	Mechanical Engineering Tech.

Relevant Work Experience

Employer	Job Title	Dates
Bechtel Power Co.	Draftsman	1974-1985
Ala. Space & Rocket Ctr.	Supervisor/Librarian	1985-1989

Contact Information

By Phone

Home: 6 p.m. - 10:30 p.m. Eastern: (205) 895-0319

By Mail

Charles P. Vick
6620 Old Madison Pike
Apt. 113
Huntsville, AL 35806
USA

Profile -- Charles P. Vick

Charles P. Vick considers the highlights of his life and work to be a trip he took in the spring of 1989 to the Soviet Union as a consultant to the Space Commerce Corporation; and his work on the Soviet lunar program. In a joint business venture, SCC is acting as the U. S. arm of Glavkosmos, the commercial Soviet launch company set up after the Challenger disaster to sell launch services to the West. It was after his trip with SCC that Vick received information validating his lunar work.

Born on October 7, 1946, Vick attended Granby High School in Norfolk, Virginia. He earned an Associate of Applied Science in mechanical engineering technology from Old Dominion University and worked for the Bechtel Power Company as a draftsman (1974-85).

Vick began observing Soviet space efforts in the late 1950's out of curiosity. As he describes it, "I wanted answers." This curiosity led to the creation of an extensive library on Soviet space activities and work as a protege of the late Charles Sheldon, the Library of Congress researcher who did much of the original research into Soviet efforts and established the Sheldon system of vehicle classification.

Vick specializes in engines, the lunar program, launch vehicles and facilities. He observes all aspects of the Soviet Union and all space programs of all nations. He is perhaps best known to the public-at-large for his highly detailed and accurate drawings and maps, which have appeared in publications from Library of Congress research service reports to *National*

Geographic. He is best known in the space community currently for his work with Art Bozlee on forecasting the existence of the Soviet shuttle and predicting its launch dates.

He has written or illustrated more than 100 articles or papers, taken part in numerous broadcast interviews and lectured extensively on Soviet space efforts. Vick was an instructor on current and potential Soviet military space systems for the Armed Forces Communication and Electronics Association Professional Development Center in 1986, was foreign technology editor for the *L-5 News*, and instructed at the University of Alabama, Huntsville's Teacher's Space Orientation Course in 1987. He helped organize, and presented two papers at, the National Space Club's **Red Star 2000**, the first national conference on Soviet space programs.

Vick is a senior member of the British Interplanetary Society; a member of the Air Force Association, the National Space Society, the National Space Club and the American Astronautical Society; and an associate member of the American Institute of Aeronautics and Astronautics.

Name: **Bert Vis** Years Experience: **9**

Occupation: **Firefighter**

Areas of Expertise

General Observations: All Soviet space efforts.

Areas of Specialization: Cosmonaut activities.

Other Space Programs Observed: All.

Performs: Freelance Journalism.

Relevant Work Experience

Contributing Editor	SpaceView Magazine
Contributing Editor	Ruimtevaarders Lexicon

Contact Information

By Phone

Home: Noon - 4 p.m. Eastern: 31-70870525 (Netherlands)

By Mail

Bert Vis
Postbus 93472
2509 AL DEN HAAG
The Netherlands

Profile -- Bert Vis

Bert Vis is a Dutch firefighter who became a Soviet space observer due to an interest in space exploration and research.

Born on September 29, 1955, he attended Dalton Scholengemeenschap High School in Voorburg, The Netherlands. While he has not completed a formal college degree, he has had nine years of firefighting studies and two years of Italian.

He began his Soviet observations in 1980, focusing on cosmonaut activities. He observes all other programs of all nations. Vis is a contributing editor to *SpaceView* magazine, and *Ruimtevaarders Lexicon*, which is a biographical dictionary of astronauts and cosmonauts. In addition, he is the space editor of a local newspaper, *The Foreburgs Weekblad.*

Vis has also written two books on local history.

Name: **James T. Westwood** Years Experience: **28**

Occupation: **Military Scientist & Operations Research Analyst**

Areas of Expertise

General Observations: All Soviet space efforts.

Areas of Specialization: Communications, remote sensing, ballistic missile defense, deep space operations.

Other Soviet Areas Observed: Military, economy, politics, geography, transportation, history, science and technology, energy.

Performs: Freelance Journalism, Public Speaking, Private Consulting.

Education

College	Degree	Major
Manchester College	BA	History
George Washington University	MS	Management Science
Naval War College	Diploma	Strategy & Policy

Also, graduate of the Defense Intelligence School, the National Cryptologic School, and numerous military technical courses.

Relevant Work Experience

Employer	Job Title	Dates
Military Science & Defense Analytics:	Proprietor	1980 - Present
Unisys, Inc.	Systems Requirements Analyst	9/87 - 2/89
E-Systems, Inc.	Principal Defense Analyst	11/82 - 2/87
U. S. Navy	Commissioned Officer	10/62 - 10/82

Contact Information

By Phone

Home: Any time: (703) 352-0319

By Mail

James T. Westwood
Military Science and Defense Analytics
3156 Cantrell Lane
Fairfax, VA 22031
USA

Profile -- James T. Westwood

James Westwood considers the highlight of his life and work has been "the perfection of scientific and analytical expertise toward the end of distinguishing as between appearances and realities." This is the culmination of work begun in October 1962 as a military intelligence, communications and electronic warfare specialist.

He was born on November 21, 1939, and attended Center Township school in Fowler, Indiana. He earned a BA in history from Manchester College, an MS in management science from George Washington University, and a diploma from the Naval War College in strategy and policy. He is also a graduate of the Defense Intelligence School and the National Cryptologic School, has taken numerous military technical courses, and studied at the University of Maryland, Georgetown University and the University of Maine.

It should be noted that he was valedictorian at his high school, won a scholarship to Manchester College, and was an honors graduate of Manchester College, the Naval War College, and the Defense Intelligence School.

Westwood served as a commissioned officer in the U. S. Navy from October 1962 until October 1982. He became the principal defense analyst at E-Systems, Inc. (11/82-2/87) and then worked as a research analyst for the Army Material Command (7/87-8/87) and thereafter for Unisys, Inc. He has been self-employed as a consultant since 1980. The subjects of his consultations include: wargaming scenarios and processes, Soviet military science and education, strategic anti-submarine warfare, C3 systems analysis

and simulations, military computer technology, SDI systems architecture, Soviet naval tactics, Soviet ocean surveillance, Soviet strategic nuclear forces command and control, and strategic re-locatable target problems solutions. His clients range from Time-Life books to the Naval War College. He is the associate editor of the *International Military and Defense Encyclopaedia* (Pergamon-Brassey's, 1990).

In addition to general Soviet space coverage, Westwood specializes in communications, remote sensing, ballistic missile defense and deep space operations. He also observes all Soviet military operations, politics, transportation, science and technology, energy production, economics, history, and geography.

He has appeared several times on radio and television commenting on Soviet space and military matters. He has also presented lectures to fourteen university and research and development groups.

Westwood is a member of the Washington Academy of Sciences, the American Geophysical Union, the Oceanography Society, the International Institute of Strategic Studies, and the Association of Old Crows.

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The following people observe all areas of Soviet space efforts and should be considered as alternate contacts for each area listed below.

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The following people observe all areas of the Soviet Union and should be considered as alternate contacts for each area listed below.

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Fax

Arenstein	(202) 659-5927	21

Computer Networks

Bix

Bozlee	address BOZLEE	26
Stine	address GHARRY	74

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Newkirk	address 72007,3344	63
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Part Three

Findings and Conclusions

Questionnaires were sent in January 1989 to an original list of 38 people and 16 new names were developed from these contacts and other sources. The survey had a response rate of 67 percent, or 36 replies to 54 queries. Of those 36 replies, 26 agreed to participate, and 10 declined to be included in the directory. No reply was received from 18 individuals prior to the April 1989 deadline. Of those 18, the leading reason for the lack of reply appears to be incorrect address information. In telephone calls to last known addresses or places of employment, it was learned that the majority of these had either moved or changed employers. It proved impractical to determine reasons for a lack of response overseas; however, at least one case was determined to be due to an incorrect address.

Of those who did respond, but declined to participate, the reason for refusal varied. Some stated that they did not feel qualified, one felt they were in enough directories as it was, and the majority offered no reason for refusal. Given the lack of factual information, two explanations are advanced to account for the refusals: 1. That the subject declined because of employment difficulties and/or politics within the Soviet watcher community. 2. That despite precautions, subjects were concerned that the questionnaire was part of an

intelligence agency operation.

In one case where an observer declined to participate, other Soviet observers who did participate told the author that difficulties with an employer had led to the refusal. However, part of those difficulties may have been the result of inaccurate predictions concerning the Soviet space shuttle. The Soviet shuttle was a point of contention among the observers for a number of years, primarily over whether or not the program existed. Some observers maintained that there was no Soviet shuttle until it was launched. Since several observers who had been proven wrong on this matter declined to participate, this political dimension may have contributed to the refusal.

In another case, a non-American observer who declined to participate made comments which suggested that some form of intelligence agency operation, or other undesirable activity, was suspected.

Since these reasons may apply to several other refusals, the two explanations were developed.

Results

Prior to the survey, it was felt that the typical observer would have a college degree, belong to space-interest groups, and have electronic contact capability. With the exception of the latter, these ideas were proven correct.

From examining the data collected in the survey, it was possible to create a profile of a typical observer based on characteristics common to the majority of respondents. This profile follows:

Sex:	Male
Nationality:	American
Average Age:	46

Years Experience:	22.6
High School Graduate:	Yes
College Graduate:	Yes
Advanced Degree:	Yes
Professional Societies:	4

The majority of respondents, twenty-one, were American. The initial contact list was heavily weighted with American names, so an appeal was made to all foreign contacts for names of other foreign observers and a story about the thesis was run in an internationally circulated newsletter published by one of the American respondents. Despite these efforts to gain responses from more foreign observers, only two additional responses were received prior to the April 1989 deadline. Indeed, a limitation of this survey is that of the 14 foreign observers contacted, 5 were not heard from and 4 declined to participate. It was the author's hope to include more foreign observers to help offset any tendencies toward cultural bias in the media. Provided with non-American names, reporters using this directory would have greater ability to obtain a broader perspective on events as a part of reporting all views.

However, there appears to be only a slight geographical bias within the U. S. This bias appears in the Washington D. C. area, with 7 observers in that region. Otherwise, observers are distributed fairly evenly across the country, with only the upper Midwest, Alaska and Hawaii having no representation.

It came as no surprise to learn that this was a highly educated group. While one respondent never completed high school, 18 have earned either a BA or a BS, 15 have earned either an MA or an MS, and 6 have earned a Ph.D.

Among the 26 respondents there were 11 BA's, 10 BS's, 6 MA's, and 10 MS's.

Nor does there appear to be an "Ivy League" bias in the group. While a number of prestigious institutions, such as Johns Hopkins and UCLA, are included, the schools are as varied as the geographical location of the observers. Only UCLA and Auburn were attended by two observers each, and two of the British observers received degrees from the Open University.

The "typical" observer did generate a surprise when it came to the professional societies. It was expected that a majority of the respondents would belong to such organizations as the National Space Society (NSS), the American Institute of Aeronautics and Astronautics (AIAA), and the British Interplanetary Society (BIS). However, while 23 of the respondents did belong to one or more space-interest societies, only 10 belonged to the BIS, 8 to the AIAA, and 7 to the NSS. The most popular societies/organizations were: 1. BIS; 2. AIAA; 3. NSS; 4. American Astronautical Society (5); 5. Air Force Association (4) and the U. S. Naval Institute (4); 7. Science Fiction Writers of America (3).

Breaking down the professions proved to be quite complicated as a number of the respondents could be placed in more than one field. The following is one breakdown: Journalist/writer - 7; NASA - 2; Aerospace - 6; Think tank - 4; Non-aerospace scientist - 4; Teacher - 2; and Firefighter - 1. These categories can be considered somewhat arbitrary, because four of the journalist/writers could be considered as belonging in the aerospace category due to previous jobs. If the journalist/writer, NASA, aerospace, think tank, and non-aerospace scientist categories were combined, it would be fair to say that the majority of observers work in or with the aerospace field.

It must be noted at this point that unless specifically stated in the profile, no connection should be made between Soviet observation and employment. Most Soviet watchers do not perform observations for their employers, or as a part of their jobs. Indeed, several observers have been told that they will be fired if their Soviet observations are ever connected in any way with their employment. Extreme care must be taken to avoid this connection, or to suggest or imply that any employer approves of, condones, supports, or verifies either the observer or the accuracy of any observation.

The potential for military or political bias is hard to determine, as the questionnaire did not specifically ask for that information. Five respondents listed that they had served in the military, one worked as a civilian employee for the military and one does work as a civilian employee for the Army. This area could be extremely significant, however, and further research should be considered.

Another surprise was the fact that only 6 listed the ability to be contacted electronically. Given that these are observers/participants in areas of high technology, it was expected that more of them would be linked to computer networks or other means of electronic communications.

Of some surprise is that under services performed, only two observers listed art/drawing and only four listed photography. The majority of the observers do perform freelance journalism, private consulting and public speaking.

Also surprising was that only 11 respondents stated that they observed all space programs, with the other 15 specifying individual programs. Of the other programs observed, NASA led with 20, the European Space Agency was

second with 14, Arianespace and NASDA tied for third with 13 each, China and the U. S. military program tied for fifth with 12 each, and India was seventh with 11 observers.

A majority of these observers of the Soviet space program, 14, listed the Soviet military as another area of Soviet observation, while 10 listed politics. These areas are observed for a variety of reasons. The Soviet military can be considered as the largest direct threat to Western interests, and is a major part of Soviet space efforts. What happens in the military can have immediate and direct effects on the Soviet space program. The same holds true for politics. Power struggles in the Kremlin, or between the Kremlin and regional centers, can affect space appropriations. This effect could be anything from a general reduction in space funding, to the cancellation of a particular program.

Conclusions

In summary, the 26 Soviet watchers profiled in this directory are a middle-aged, well educated, male-dominated group. They belong to a wide range of professional societies and while they are observers/participants in high technology, do not appear to have assimilated some of that technology into their own lives. Their knowledge of Soviet space activities, combined with knowledge of the media through freelance journalism, and freedom to speak their own opinions and not those of their employers or any government, makes them a valuable resource to media attempting to report on Soviet space activities. Due to their observations of other Soviet areas, such as politics, they can be extremely useful to the media as a whole in covering other aspects of the Soviet Union. Finally, their knowledge of other space programs provides additional value for media reporting in those areas.

This is a pioneer document, and future directories can be made more comprehensive by adding information that was impossible to include in this effort for political and logistical reasons. The first such improvement would be the inclusion of the ability to speak, read, or write Russian. Another would be to gather information on political affiliations to try to provide indication of potential political bias. A third improvement would be the possibility of adding one or more Russian Soviet observers, in the spirit of glasnost.

While glasnost may indeed open doors to the Soviet space program, the observers listed in this directory will continue to provide an independent source of information on important space-related developments in the Soviet Union.

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APPENDIX

THE UNIVERSITY OF TENNESSEE
KNOXVILLE

Questionnaire for

The Soviet Watchers:

A Directory of Western Observers of Soviet Space Efforts

College of Communications

School of Journalism

Prepared by
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The Soviet Watchers: A Directory of Western Observers of Soviet Space Efforts.

Biographical Information

1. Name_____ Date of Birth_____ Sex M☐ F☐
2. Occupation_____ Company_____
3. Do you perform any of the following on any space program:
   Private Consulting☐; Freelance Journalism☐; Photography☐;
   Art/Drawing☐; Public Speaking☐.
4. Please list your previous employers below.

Company and Location	Title	Dates

Contact Information

5. Home Address.
   Since address forms vary from country to country, please place on the lines below exactly how you would like correspondence addressed:

_____
_____
_____
_____
_____
_____
_____
_____

6. Home Phone_____ Work Phone_____
   Mobile Phone_____ Other Phone_____
   If you have listed a number under other, please specify for what the phone is used.
   _____
7. In what time zone do you live? _____
   To be used to convert times given below to U. S. eastern time
8. Are you willing to be contacted at home:
   By Phone? Y☐ N☐; If yes, during what hours?_____
   By Mail? Y☐ N☐

9. Are you willing to be contacted at work:
   By Phone? Y☐ N☐; If yes, during what hours?_____
   By Mail? Y☐ N☐
   If yes, please specify the address below:

   _____
   _____
   _____
   _____
   _____
   _____
   _____
   _____

10. Are you an amateur radio (HAM) operator? Y☐ N☐
    Are you willing to be contacted this way? Y☐ N☐
    If yes, what is your call sign? _____
    What frequency(ies) do you monitor?_____
    At what times?_____
11. Do you have a TELEX address? Y☐ N☐
    Are you willing to be contacted this way? Y☐ N☐
    If yes, please list the address._____
12. Please list the computer networks (CompuServe, BIX, etc.) to which you belong, and your electronic address for those on which you are willing to be contacted:
    Network_____ Address_____
    Network_____ Address_____
    Network_____ Address_____
    Network_____ Address_____
    Network_____ Address_____

Education

13. What High School did you attend?_____
    Location?_____
    Did you graduate? Y☐ N☐
14. Please list all colleges you have attended and the location. Please also note your degrees, majors, and any special honors:
    College _____ Degree_____Major_____
    College _____ Degree_____Major_____

Answer space continued on next page

College _____ Degree_____ Major_____
College _____ Degree_____ Major_____
College _____ Degree_____ Major_____

15. Please list all other studies, including seminars, short courses, on-the-job training, and vocational/technical courses. Give the course title, when, and where taken.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

16. Please list any special honors, scholarships, or fellowships that you have received.

_____
_____
_____
_____
_____

17. To what scholarly or professional societies do you belong? Please list type of membership (full, associate, etc.) and any offices held.

_____
_____
_____
_____
_____

Soviet Experience

(In any any question, e.g. 24 or 26, where the answers are too numerous to list, feel free to indicate a number and subjects. Ex., Public Speaking: *More than 200 covering these topics: space stations, future flight...*)

18. When did you begin observing Soviet space efforts (month and year if possible)?

_____

19. Why? _____

Answer space continued on next page

20. Do you have an area, or areas, of specialization (EVA activities, liquid engines, etc.)? If so, please list below:

22. Do you observe other aspects of the USSR (such as local or national politics, military, general aviation)? If so, please list below:

23. What other space programs do you observe (NASA, NASDA, etc.)?

24. Please list your Soviet-related publications by title, publication, and date published.

25. Please list any radio or television broadcasts on the Soviets in which you have taken part either as the prime subject, a source, producer, or director. Please identify whether it was for a station or network, and when it took place.

26. Please list your public speaking experiences by date, group, and subject.

27. Have you ever taught any type of Soviet studies (history, politics, current efforts, etc.)? If so, please list below by place and course(s) name.

28. Please provide below a complete listing of all other publications, giving the title, publication, and date published.

29. Please provide below a complete listing of all other non-Soviet broadcasts in which you have taken part either as the prime subject, a source, producer, or director. Please tell whether it was for a station or network, and when it took place.

30. Please describe what you feel to be the highlights of your life and work.

Answer space continued on next page

Since no questionnaire can be complete, please feel free to add any information (such as information about your family) that you would like to see included in your profile, but that has not been requested. Also, please feel free to continue the answer to any question on a separate sheet of paper.

Thank you very much for your time and consideration in completing this form.

Please place the finished form in the pre-paid envelope provided and return it to:

C. Blake Powers
UTK School of Journalism
330 Communications Building
Knoxville, TN 37996-0330

VITA

C. Blake Powers was born in Macon, Georgia on July 15, 1960. He attended elementary schools in that city and graduated from Stratford Academy in June 1978. He attended Auburn University from August 1978 until May 1982, where he studied Engineering, English, and Psychology. He transfered to Columbia College Chicago in August 1982 and graduated in August 1983 with a Bachelor of Arts degree in Journalism, with honors. He has pursued independent coursework in magazine writing, Xerox computers, and teaching technical and policy aspects of nuclear arms. He attended the Space Academy in 1986 and was one of two recipients of the Right Stuff Award.

Powers has been a freelance journalist since 1980 and has had articles and/or photographs appear in publications ranging from the *Chicago Sun-Times* to the *Auburn Bulletin*. In addition, he has also served as Correspondent-at-Large for *Space World* magazine and as Manager of Media Relations for the 44th World Science Fiction Convention, ConFederation.

After serving for more than two years as the Senior Science Writer for Schneider Services International at the U. S. Air Force Arnold Engineering Development Center, he entered The Graduate School of the University of Tennessee, Knoxville, in January of 1988 and began full-time studies in August 1988. He received the Master of Science degree with a major in Communications in December 1989.

The author is a member of the New York Academy of Sciences, the Aviation/Space Writers Association, the American Association for the Advancement of Science, and Nikon Professional Services. He is an associate member of the National Association of Science Writers.