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David Purdy

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THE AMERICAN INSTITUTE OF AERONAUTICS AND ASTRONAUTICS: THE AMERICAN AEROSPACE INFORMATION SOURCE

By David Purdy

HISTORY
In 1930, in the wake of the Great War, and at the threshold of World War II, a small group of visionaries in New York City founded the American Interplanetary Society (AIS). Strong interest in rocketry, and the involvement of related industries in the society led them to change the name to the American Rocket Society in 1934.
In 1932, a group of accomplished engineers and scientists working in an aircraft industry no longer as robustly supported by the military, formed a professional society called the Institute of Aeronautical Sciences (IAS). The Membership roster of the IAS from 1934 shows Orville Wright as an Honorary Fellow, and on its advisory board names that have become the monikers for the institutions they helped build: Ames, Sperry, Lewis, Northrop, Clark. It was housed in the RCA Building.
During this formative period, in 1936, the Library was begun, consisting of Society publications and important engineering and technical works of the time.
With the advent of the Space Age, the society changed its name (but not its initials), becoming the Institute for Aerospace Sciences. Finally, in 1963, the two merged, and became the American Institute of Aeronautics and Astronautics. AIAA Headquarters moved to Washington, D.C. in 1987, but the Technical Information Division remained in New York, where a strong academic community proves a reliable source of skilled abstractors and indexers for the production of the database.
About 8 percent of the world’s aerospace literature is published by AIAA. Much of this is in the form of papers presented at its more than 30 conferences. They are furnished to AIAA by the author and supplied on a subscription basis on microfiche and in hard copy. Individual papers are available from the AIAA Library’s document delivery service, Quality Express Documents (QED).
Some meeting papers are sold as collections in one or more soft bound volumes. These volumes or sets are available through the Technical Meetings Department of AIAA. Individual papers from the volumes can be ordered through QED. Each paper has an AIAA Paper number assigned by the Technical Meetings Department, as well. This control number is used to refer to the paper, whether or not it is published. Sometimes, papers are not given or are otherwise unavailable for publication. Author, title, and numbering information...
first appear in the AIAA Bulletin, now published as a section of Aerospace America, AIAA’s flagship magazine. There the conferences given by AIAA are described, the subject sessions are detailed, and the papers planned are cited. Over the course of a year, more than 5,000 papers may be given at the meetings.

Libraries with an extensive AIAA paper collection or which need to identify papers rapidly need the Finding Guide to AIAA Papers, published annually. With title, author, and paper number indices, it enables swift identification for ordering or locating within an existing collection.

AIAA also publishes journals. Edited by prominent leaders in their fields of coverage, they seek to disseminate and archive significant advances in various vital aerospace disciplines. They are:

**AIAA Journal**
**Journal of Aircraft**
**Journal of Guidance, Control, and Dynamics**
**Journal of Propulsion and Power**
**Journal of Spacecraft and Rockets**
**Journal of Thermophysics and Heat Transfer**

AIAA books serve to capture the collected experience of the profession the Institute serves and to make them available to the engineering world. Topics range from aircraft combat survivability to rarified gas dynamics, and have audiences in industry, education, research and public policy.

Several publisher’s series help to identify the basic nature of the material. The Progress in Astronautics and Aeronautics series serves as a library of subject specific expositions of disciplines that have developed enough to publish dependable findings. The volume on lunar exploration, for example, was published in 1963, six years before any actual lunar exploration had taken place. In the preface, the authors mirrored the basis of the series:

> The drive toward the manned exploration of the moon is the most daring and costly single engineering project in history. The audacity of the concept, the giant resources to be mobilized, and the enormous cost that will be involved make it imperative that the program decisions be prompt and correct.

This book describes in part the technical base on which such decisions must rest. Through the medium of papers prepared by specialists in most of the related fields, it attempts to give a view of the lunar exploration problem as seen in mid-1962. Some of the material is certain to be ephemeral, only of transient value, as were many papers on nuclear energy published during the opening of the nuclear age. Some of it, however, is basic. Three years after the first impact of a manmade object on the moon, and in the year when men floated weightless for a million miles, US specialists understood the main technical outlines of the problem, even if they could not match these achievements. US rockets delivered one malfunctioning spacecraft to the moon, shot two others into heliocentric orbits, placed a planetary craft on course to Venus, and propelled three astronauts into flawless orbital flights. In this book both the technical foundations of these achievements and some of the problems of their execution are described.¹

¹Clifford I. Cummings, and Harold R. Lawrence, eds. *Technology of lunar exploration*. v. 10; 1963; p. ix.
The AIAA Education series serves as a resource for teachers and learners in a variety of specific disciplines. Helpful when evaluating these materials for the possible inclusion in curricula are the editor’s forewords. These often detail the intended use of the book, as well as providing insights into other works in the series, both published and forthcoming, which might complement the work being examined. This series is one of AIAA’s primary efforts in advancing the purposes of engineering education.

While AIAA is a leader in aerospace publishing, only about a fifth of what is held in the library is abstracted and indexed in the Aerospace Database. It is not unusual for AIAA to receive rare conference proceedings not available elsewhere in the United States. Additionally, hundreds of other books a year are added to the collection, making AIAA a strong resource for these items. Since the aerospace sciences cross so many disciplines, books on neuro-computing sit on the shelves next to titles on reliability analysis.

ACCESS

Today’s science and technology information user demands quick and flexible delivery. The copy machine, the fax, the personal computer, and the advent of overnight postal delivery place library professionals in a position unique in history. They provide the professional with powerful tools to transmit and repackage, and at the same time increase the expectations of the community served.

AIAA operates a document delivery service providing remote access to its collection to meet these dynamic needs. Dubbed Quality Express Documents (QED), the service offers any document in the collection except whole books or conference volumes at competitive rates.

The public may use the library on a consultation basis during normal business hours. AIAA library materials do not circulate except to NASA Center Libraries. Photocopies of desired materials can be obtained while at the library. AIAA staff will retrieve documents identified by visitors.

For those needing more extensive research, AIAA provides Custom Searches. For a fee, up to 50 citations are provided from the Aerospace Database, along with expert advice from an information specialist. Libraries with limited reference staffs will find this referral particularly effective.

SEARCHING TOOLS

The International Aerospace Abstracts (IAA). This is the premier index of the open literature in aerospace. Published under contract to NASA, it selectively covers journals, books, technical paper series, and conference proceedings in aerospace disciplines. Arranged by subject category, and with author, NASA Thesaurus term, and title indexes, it serves as a current awareness and subject reference tool. Citations include accession numbers assigned by AIAA, titles, authors and their affiliations, source bibliographic citations, bibliographic reference counts, supporting grant numbers, and abstracts.

The abstracts are of the informative type, making relevance verification easier. As well, AIAA analysts make sure the abstracts conform to a high standard. Staff abstractors compose new abstracts when original abstracts are substandard or are not present.
Figure 2 1992 Aerospace Database Coverage

The database contains citations from works originating in over 100 countries worldwide. During the dissolution of the Soviet Union, AIAA took special pains to assure the best possible coverage of the literature from the resultant countries.

The materials are gathered from a myriad of sources, including personal contacts and sister society arrangements. All materials are examined by an experienced Publications Analysis staff which determines which materials are to be included. This is largely based on the Scope and Coverage document issued by NASA. It contains a description of each of the 76 categories used to organize the database by subject. This document serves as the primary guideline for understanding the category terminology, and for interpreting the appropriateness of a document for inclusion in the database.

NASA Thesaurus. This is a useful companion to IAA. It contains the controlled vocabulary used in the indexing of the International Aerospace Abstracts and of Scientific and Technical Aerospace Reports (STAR). STAR covers government report literature and is available from the NASA Scientific and Technical Information Program, as is the Thesaurus.

Aerospace Database. This is the online merger of IAA and STAR citations into a single database. Available on the DIALOG database searching service, it contains data from the early 1960s through the present. In addition to title, author, and accession number searches, it provides for report number, abstract keyword and Boolean operations. Documents located online can be ordered from AIAA directly through the Dialorder function.

Aerospace Database on CD-ROM. The same searching capabilities as the database plus menu-driven options are available through the CD-ROM version.
of the database. It consists of two disks with citations from 1986 through the last quarter of the year. Those libraries with communications lines attached to their CD-ROM connected workstations can save searches for use on Dialog online after having completed the search on the CD-ROM. For libraries seeking to save connect time charges and yet have the full range of online capabilities, including ordering, this option is attractive.

Libraries with large aerospace related programs are recommended to have the free annual *AIAA Publications and Services Catalog*. This assures the acquirer of accurate information, speeding the order process.

In cases where a book is not cited in the database, but the subject seems relevant to aerospace, a call to the library is in order. Most files are available only to staff, so this is the best method to satisfy such a query.

It should be further noted that although rockets and planes were the cornerstone of the database, the aerospace community's interdisciplinary tendencies make the *Aerospace Database* or IAA a sensible stop for searches in almost any field. The coverage of engineering technologies, computer science, physics, geosciences, and a range of scientific and technical leading edge developments which support or spin off from aeronautics, astronautics and space science may come as a surprise. In the universe of information, AIAA brings it all home.

**BIBLIOGRAPHY**


*National Aeronautics and Space Administration. Scientific and Technical Aerospace Reports*. Washington, DC: NASA, Office of Scientific and Technical Information; 1963-

**APPENDIX A**

List of library related AIAA telephone numbers

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**SCI-TECH NEWS**

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UNRAVELING DNA

Maxim D. Frank-Kamenetskii

Institute of Molecular Genetics, Russian Academy of Sciences, and Department of Molecular Biophysics, Moscow Physical and Technical Institute, Moscow, Russia


UNRAVELING DNA provides both laymen and scientist readers with a concise highly readable understanding of the structure, properties, and functions of the DNA molecule. The reader will find answers to all major questions about the biological, biotechnological, medical, physical, chemical, and mathematical aspects of DNA. In addition, the book includes an historical retrospective of past DNA research and forecasts future trends in the field.

Written by an internationally acclaimed professor of biophysics as well as one of the world’s leading authorities in the field of DNA research, UNRAVELING DNA is designed to help professionals not specializing in molecular biology to understand the recent advances in this rapidly expanding field. The book is also especially useful to advanced high school students, junior college students, and university students interested in modern biology, medicine, physics, chemistry, and mathematics.

CONTENTS (main headings)


ALSO OF INTEREST...

INTRODUCTION TO MOLECULAR CLONING TECHNIQUES

Gérard Lucotte, Laboratoire d’Anthologie Moléculaire, CHU de Cochin-Port Royal, Paris, France and François Banex, University of Washington, Seattle

Tables, figures, references, appendices, index.

Introduction to Molecular Cloning Techniques is a concise summary of the basic principles and methods used in genetic engineering and is intended for students and research technicians involved in microbiology, molecular biology, genetics, bioengineering, biotechnology, and chemical engineering.

Focusing entirely on the most widely used host, E. coli, the book provides extensive descriptions of cloning vectors and essential recombinant DNA methodologies, as well as discusses the steps involved in the construction of genomic, cDNA, and cosmid libraries. The chapters describe important aspects of molecular cloning by providing the necessary fundamental biochemistry and microbiology background to clearly introduce the pertinent genetic engineering concepts.

Examples of routinely used experimental protocols and solved problems are included at the end of each chapter in order to extend their theoretical content and familiarize the reader with laboratory techniques and conditions for their use.

“This brilliant book differs from all the other accounts of the new biology that I know. It interweaves the history of discovery related to DNA with a clear account of the logic of those discoveries and of the problems yet to be solved. Yet anybody can understand it: it reads like a detective story.”

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“In this vibrant book, Maxim Frank-Kamenetskii tells us of living cells that learn from the dead, why some cells keep guest genes as people keep dogs, and how genes can form knots. By means of these and many other strange-but-true tales, he skillfully inbues us with his joy and fascination with the living world, and the role of DNA in it.”

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