



# Annual Report 2003

92

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# Preface

In this new century of globalization, liberalization and transformation, the existence of a museum should flow with the trend of the times. Its management has to merge the promotion of education/culture and economy/enterprise in order to link with the society and the world and facilitate sustainable development. This Annual Report is an important document for management of National Science and Technology Museum in industrialization, business sustainability, effect digitalization and merit transparency, as well as an important step toward a bright future.

The “Annual Report for 2002” was first published in 2003. Two versions were prepared in Chinese and English separately. Compared with the last report, the basic structure of the “Annual Report for 2003” has not been changed, except that achievements have been quantified and compared with each year since the establishment of NSTM. This time the report is prepared in Chinese and English in one volume.

NSTM's weakest point is short of distinctive features, and major advantages are available building space and industrial related exhibition items. The year 2003 was an important one for NSTM in regards to strategies of the reorganization of internal resources and the outreach of outside resources. The purpose is to transform NSTM from the present reality as a science center to a solid science and technology museum with the functions of both science center and traditional museum. In terms of organizational reformation, the Collection and Research Division has been established and the function of advisory committee and museum publications has been reinforced. NSTM initiates a system to invite professors and graduate students as volunteers to the museum. With regard to collection and research policy, NSTM requires all research staff to be responsible for the acquisition and study of collection objects. Based on the principles of making the temporary exhibitions be permanent and the permanent ones become temporary, NSTM tries to improve exhibitions by acquiring external resources from private companies and various government departments for improving and



renewing permanent exhibition halls. The 2nd floor of the main building is in the process to be a traditional museum with valuable collected items in line with the installation of a new hall "The Industrial History of Taiwan" with the Ministry of Economic Affairs. Regarding upgrading educational programs, some activities are now a part of the exhibition halls and some events are supported by various external organizations. Furthermore, the 4th floor of the main building is in the process to be a modern science center in line with the installation of a new hall "Open Sesame: Science Exploration Center" to accommodate the needs of primary and high schools. To make a better use of available space, the south building of NSTM is transformed into a multi-purpose incubator including research center, collection storage, library, publication center, information and computer center, and convention center. Furthermore, a special project "Technology Spotlight", a kind of installation art, by Kaohsiung City Government is in process to improve the surrounding environment of NSTM. And a small railroad station is scheduled to be open in the late 2005 just south of the museum.

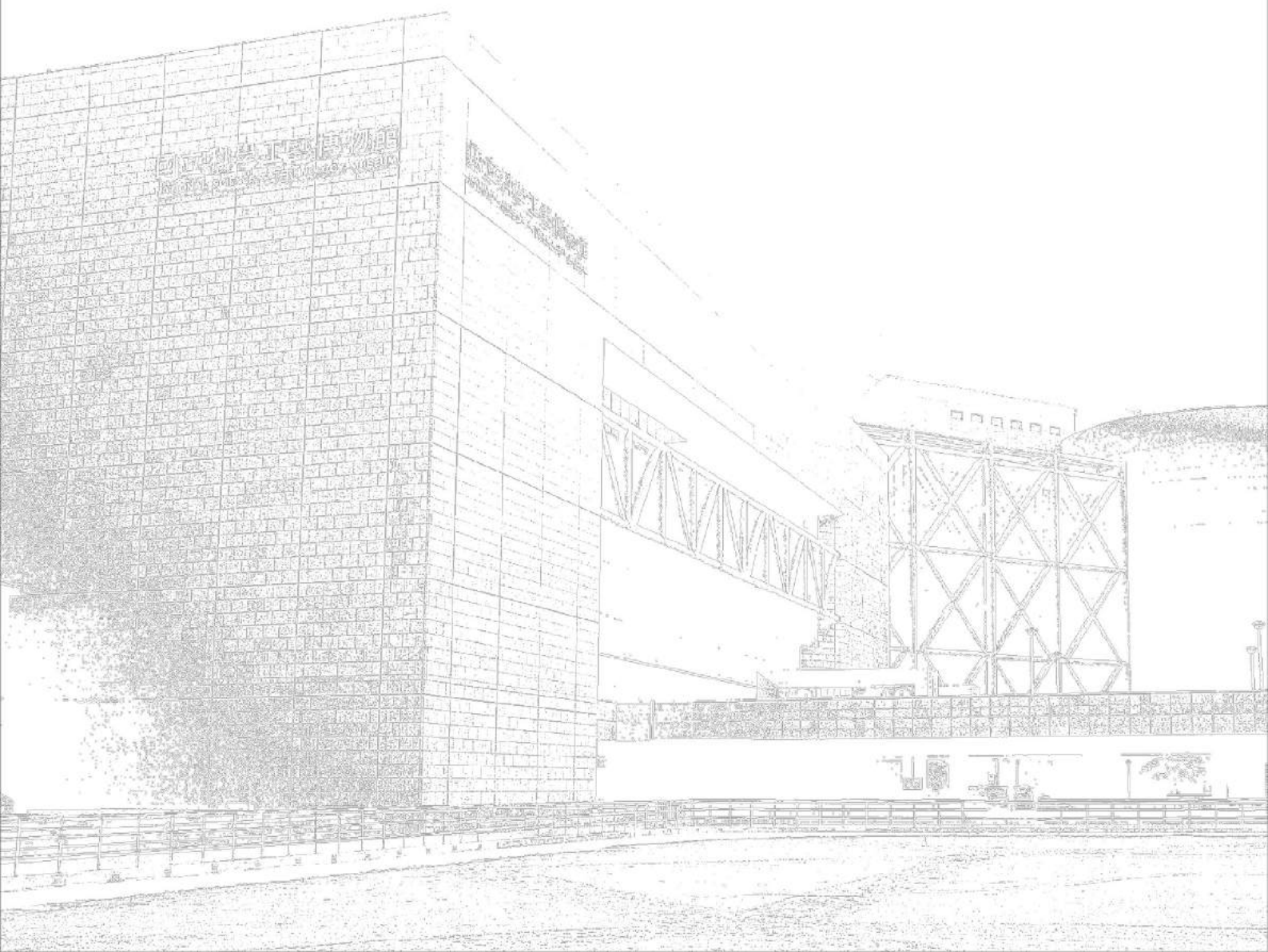
With limited and restricted existing resources, NSTM is trying to make best use of its available space and social links to become a unique museum with multiple functions. It is hoped that the rebirth of NSTM will serve its origin missions as to complement regular education, and to provide citizens a life time learning channel to the latest knowledge and the development of Taiwan's industry in science and technology. Following the regular publishing of the annual report, the staff of the NSTM is expected to develop a monthly or quarterly report by individual and section for systematic self-evaluation purposes. Consequently, the annual report would become the foundation of each activity, as well as the basis for reviewing the annual output at the NSTM. As a result, this annual report would be an indispensable periodical for domestic and foreign institutions that want to learn more about the NSTM.

*Hong-Sen Yan*

Director-general of National  
Science and Technology Museum  
May 2004

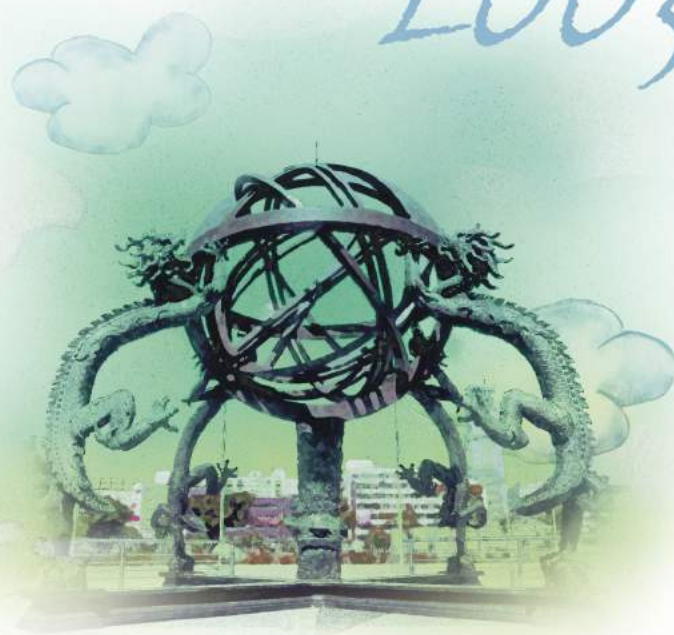
# 目錄

◆ 館長序/Preface	
◆ 簡介/Introduction	8
◆ 發展目標/Development Objectives	22
◆ 研究成果/Research Achievement	26
◆ 業務績效/Performance	30
◆ 經費運用/Budget Management	74
◆ 附錄：大事紀/Museum Chronology	84



# Annual Report 2003

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# Introduction

## I .History

The National Science and Technology Museum (hereinafter referred to as “NSTM” ) was one of the central cultural facilities constructed in the “ Project of County/City Cultural Center Construction” in The Twelve Construction Projects announced by the Executive Yuan in 1979. As the first museum of applied science on the island as well as the first national institute of public education in Southern Taiwan, the focus of the museum is to collect and study scientific and technological objects, hold exhibitions related to science and technology and promote the education of such as well as provide the public with a place for leisure and lifelong learning. Located on Jiouru 1st Road, Kaohsiung City (originally City Park No. 6), the museum covers 19.16 hectares of land. The buildings contain a total building area of 20,756m<sup>2</sup> and the floor area is 114,355m<sup>2</sup> with 36.89 meters of structural height.

1. **Northern building:** 15,313m<sup>2</sup> of building area is used for the administration center, permanent exhibition halls, temporary exhibition halls, IMAX<sup>®</sup> 3D Theater, Multimedia World, maintenance and repair place as well as gift shops for the public.
2. **South complex:** 5,443m<sup>2</sup> of building area is used for the library and audio-visual center, research center, auditorium, lecture theater and storage room.

### Brief Description of the Preparatory Process:

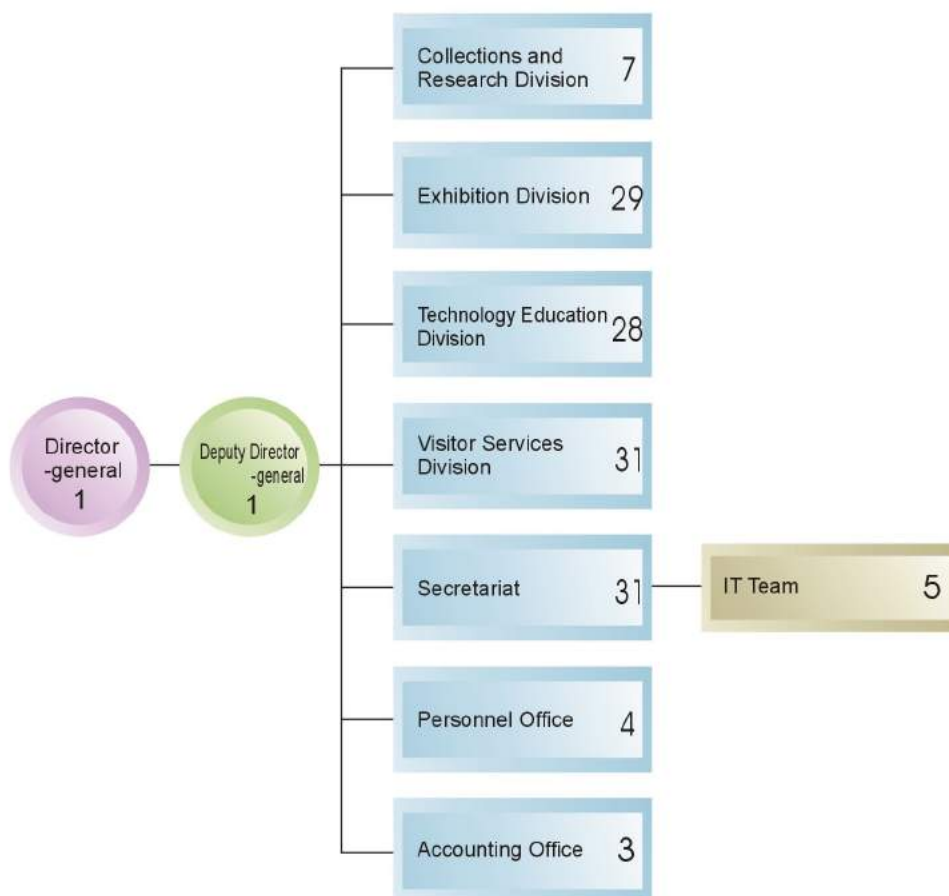
1. July 1986  
The Planning Council for NSTM was established.
2. November 1988  
The Executive Yuan approved the construction plan.
3. October 2nd, 1989  
Construction of the museum commenced.
4. January 1st, 1997  
The museum was officially established with the approval of the Executive Yuan and the Ministry of Education.
5. July 26th, 1997  
The south complex was opened.
6. September 21st, 1997  
The museum park was opened.
7. November 9th, 1997  
The museum was opened to the public.

## II. Organization and Number of Staff

### (1) Organization

In compliance with the temporary organizational rules of the NSTM and the organization chart stipulated and issued by the Ministry of Education on December 30th, 1996, a director-general and a deputy director-general were placed over the Exhibition Division, the Technology Education Division, the Visitor Services Division, the Secretariat, the Personnel Office and the Accounting Office. To meet the development requirement of the museum, an IT team and a Collection and Research Team were established on July 16th, 1998 and February 1st, 2001, respectively. On August 5th, 2003 the Ministry of Education approved the temporary organizational regulations which allowed the museum to officially establish the Collections and Research Division on September 1st, 2003. This establishment was later agreed by the Examination Yuan on September 22nd, 2003.

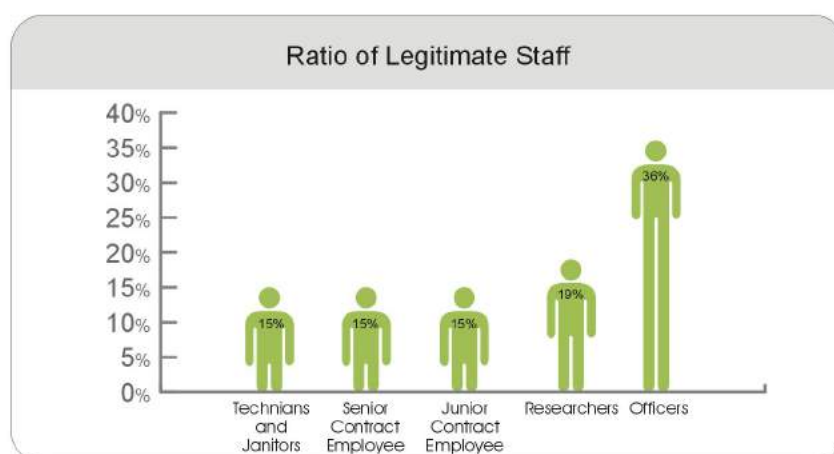
#### Organizational Structure



## (2) Number of Staff

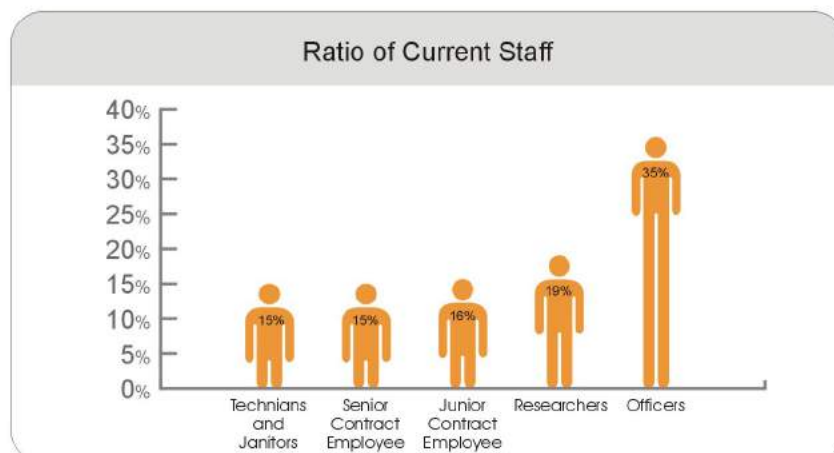
### 1. Legitimate Number of Staff

In accordance with the law, the museum is allowed to employ 59 museum officers, 31 researchers and 8 technicians and janitors. In 1997, the museum applied to the Executive Yuan to hire contracted personnel to meet the demand of the museum and was approved to hire 50 contracted staff and 17 technicians. The museum is allowed to employ 165 people in total.



### 2. Current Number of Staff

In compliance with the government's downsizing policy, the museum has stopped hiring contracted personnel, technicians, and janitors. Currently, the museum employs a total of 140 people, including 49 museum officers, 27 researchers, 43 contracted personnel and 21 technicians and janitors.

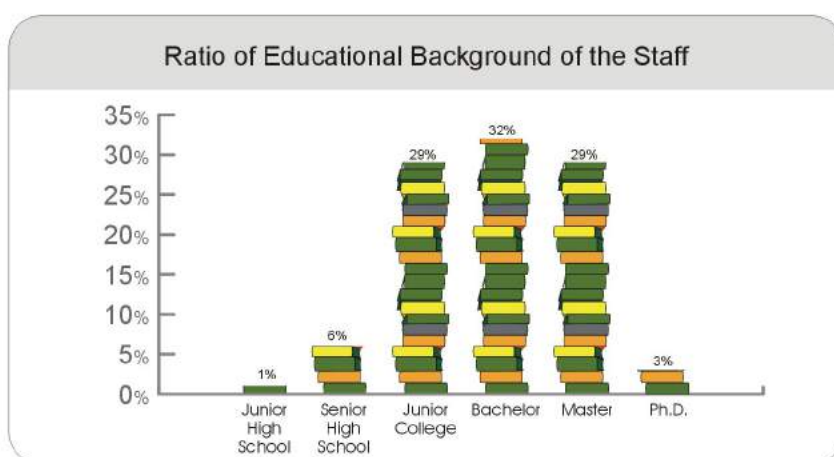




### (3) Educational Background of Staff

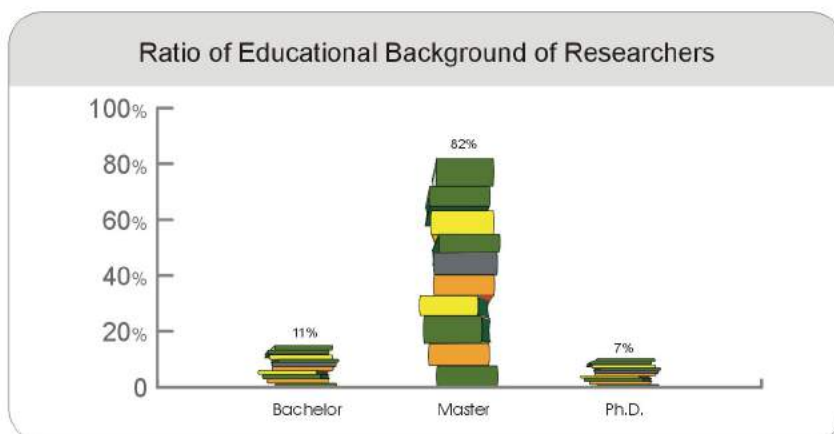
#### 1. Educational Background of the Staff

Currently, the museum employs a total of 140 people. 4 have Ph.D. degrees, 40 have earned their master's degrees and 45 have bachelor's degrees (including those who graduated from police or military academy), 41 graduated from junior colleges, 8 from senior high schools and 2 from junior high schools.



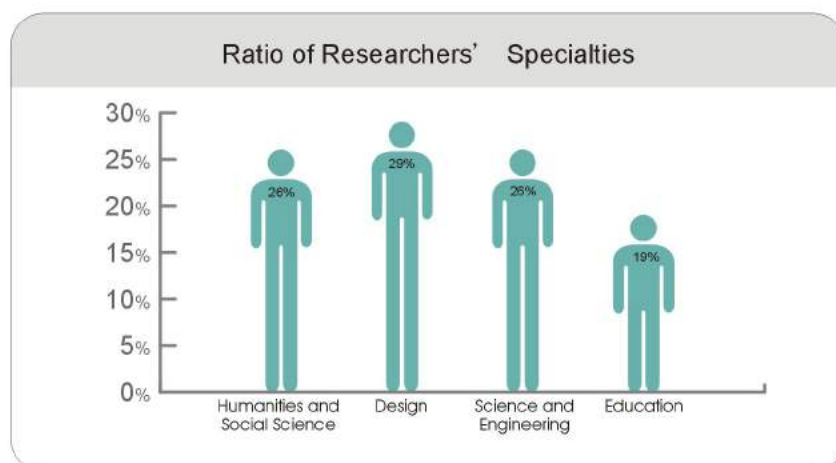
#### 2. Educational Background of the Researchers

The museum currently employs a total of 27 researchers, including 2 with Ph.D. degrees, 22 with Master's degrees and 3 with bachelor's degrees.



### 3. Researchers' Specialties

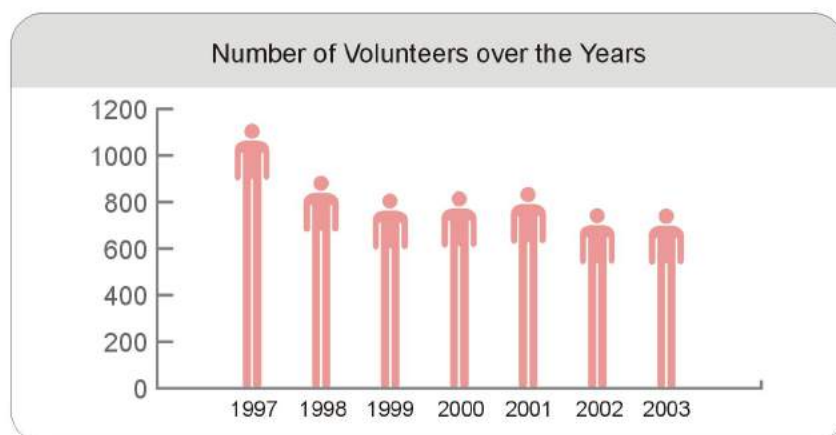
There are a total of 27 researchers with 7 specializing in science and engineering, 5 in education, 8 in design, and 7 in humanities and social science.



## (4) Participation of Volunteers

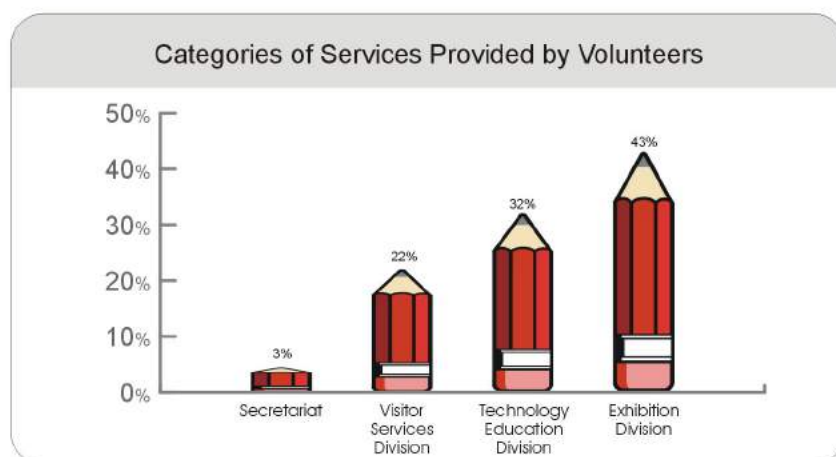
1. The museum had a total of 772 volunteers in 2003.

Number of Volunteers							
Year	1997	1998	1999	2000	2001	2002	2003
Number	1136	913	837	846	864	774	772



## 2. Services Provided by Volunteers

There are currently 772 volunteers. Approximately 334 of whom are in the Exhibition Division, 245 in the Technology Education Division, 171 in the Visitor Services Division and 22 in the Secretariat that help provide 11 types of services.



## 3. Student Volunteers

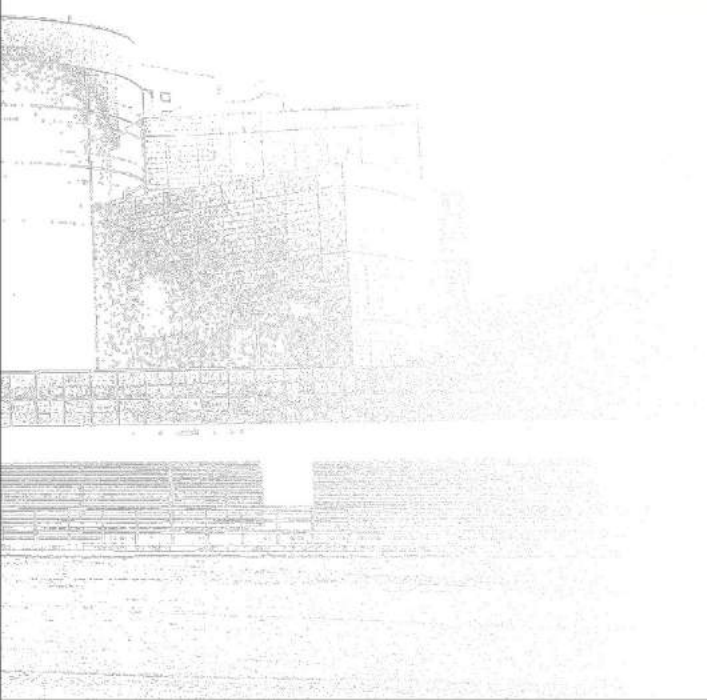
In January and October 2003, the museum held two recruiting activities and recruited 132 students to provide guided tours.





# Annual Report 2003

發展目標



## Development Objectives

1. Establish a comprehensive collection policy and collect, purchase, and maintain scientific and technological objects.
2. Enhance access to museum's collection and digitize technological and scientific objects.
3. Establish a display updating mechanism and change exhibition themes gradually in order to vitalize the exhibition functions of the museum.
4. Integrate school resources and hold educational activities related to science/technology and develop teaching materials and aids in accordance with educational policies.
5. Enhance public services, utilize the power of the media as well as community resources and establish diversified marketing strategies to increase visitor rates.
6. Strengthen public safety around the museum and create a high-quality visiting environment for better service.
7. Promote automation of administration affairs of the museum and provide lifelong learning access on the Internet.
8. Enhance and increase Internet software and hardware in the museum for better working efficiency.
9. Plan a digitized library to provide the public with various information from an Internet database and create a specialized book repository for different research topics in the museum.
10. Strengthen cooperation among museums by holding various seminars and inviting guest speakers to improve research quality.

# Annual Report 2003

研究成果





# Research Achievement

## I. Research Achievement

This year, the museum produced 27 journal papers, 11 conference papers and 40 research projects (Among which, the museum staff was in charge of 26 of those projects and participated in 14 others). The staff of the museum was invited to participate in 41 academic speeches, 4 academic seminars and 58 academic lectures. The museum also issued 28 publications.

Statistics of Research Achievement

Types \ Year		1997	1998	1999	2000	2001	2002	2003
Number of paper								
Journal Papers		17	28	31	38	31	42	27
Conference Papers		1	1	3	2	5	5	11
Research Projects	Hosting	2	1	2	3	8	13	26
	Assisting	1	3	3	8	11	12	14
Academic Speeches by Invitation		0	1	16	3	9	44	41
Publications	Books	1	3	7	11	26	8	13
	CDs	6	1	0	2	1	3	0
	Brochures	2	0	3	4	2	2	8
	Flyers	3	2	5	5	8	5	6
	Journals	5	6	6	6	7	7	1
Academic Symposiums		1	2	4	3	1	4	4
Academic Lectures		0	51	42	50	30	49	58

## II. Education & Training

To enhance the professional knowledge and skills of the staff and to further advance the academic research level, 58 training programs were offered to the staff this year.

Statistics of Training Programs Offered

Year	1997	1998	1999	2000	2001	2002	2003
Number	5	16	20	57	36	50	58

# Annual Report 2003

業務績效



## Performance

### I .Collections and Research

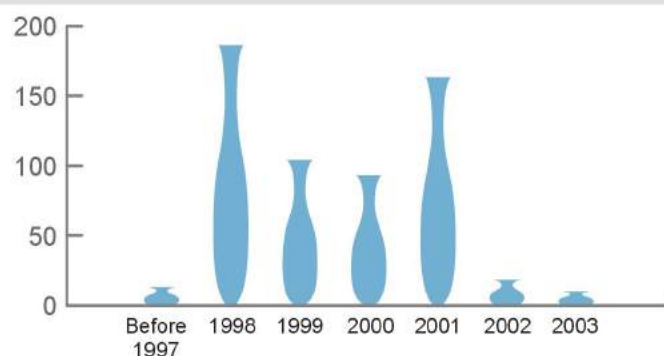
#### (1) Improving Collection Procedures

In response to the development of the museum and social changes, the museum amended its collection policies and completed three operation procedures, which included “ Procedures for Acquisition” , “Procedures for Disposal” and “Outlines for the Organization of Acquisition Evaluation Committee” . These procedures help museum's collection management on the acquisition and disposal of collections. This year, five acquisitions were added to the collections. They include three mosquito trap prototypes given by Dr. Jih-ching Lien, one early “Kinchol” mosquito incense coil, and one engine (JT9D) donated by China Airlines. Currently, the museum has 582 acquisitions.

Number of Acquisitions over the Years

Year	Before 1997	1998	1999	2000	2001	2002	2003	Total
Number	13	186	104	93	163	18	5	582

Diagram of Acquisitions over the Years





## (2)Major Achievement

### 1.The Workshop of Preservation and Conservation of Fiber-made Technological Objects

The workshop was held on April 3rd and 4th, 2003. Experts in fiber-made technological objects were invited to give courses to 83 participants. In December, the “Preservation and Conservation Manual of Fiber-made Technological Objects” with eight course hand-outs and six case studies was published.

### 2.The Workshop of “Preservation and Conservation of Films and Photographs”

The workshop was held on November 27th and 28th, 2003. Ms. Katherine Jennings, the conservator of photographic objects at the International Museum of Photography and Film at George Eastman House, was invited to hold this workshop. This workshop was the first ever in Taiwan that focused on the preservation of photographs.



### 3. 2003 Cultural Forum-Serial Lectures on World Heritage

Twelve lectures were hosted by the Council of Cultural Affairs and organized by the museum from July 11th to October 18th. A total of 12 experts and scholars were invited to give lectures and 744 people attended in the events.

### 4. The Roundtable Seminar on Object Study

This academic seminar included six themes, held from January 28th to October 23rd in 2003. Mr. Yan-chi Yang was invited to give a talk titled “100 Years Heritage on the Sugar Industry in Taiwan”; Mr. Wei-jih Huang talked about “Transportation History in Taiwan”; Mr. Li-cheng Yeh, Lecturer, Shih Chien University, was invited to speak about “The History of Taiwanese Dressing”; Mr. Ying-jin Huang, spoke about “The Past and Future of the Machinery Industry in Taiwan”; Mr. Yuan-huei Chiu from the Kao Yuan Institute of Technology delivered a speech about “Taiwanese Cattle” and Ms. Sin-lan Hong talked about “Modern Meinong—the One Coming from the Cradle of Tobacco”.



●「物件研究圓桌討論會」學術研討會

## 5.The “Do It Ourselves-Review of Construction Collaboration in Tan-nan Village” Symposium and “Building a House with Friendship and Kindness” Exhibition

On September 20th, 2003, the museum invited Dr. Siang-lin Hu, professor in East Asia Institute of University of Bochum in Germany, who was responsible for the construction collaboration project in Tan-nan Village in Nantou County in March 2003 and Mr. Ying-jueng Xie, an architect who actively promotes construction collaboration in Taiwan, Mr. Zhao-wei Zhang, a professional filmmaker, Professor Zhuo-jun Gong from the Graduate Institute of Philosophy of the National Sun Yet-san University, Professor Zao-qing Yu from the Department of Architecture of Chung Yuan University, Professor Xin-xing Chen of the Graduate Institute of Social Development of Shih Hsin University and Professor Chueng-xi Lin from Department of Cultural Heritage Conservation of National Yunlin University of Science and Technology to participate in the symposium and reviewed the amiable exchanges between Taiwan and Germany in regards to construction collaboration projects as well as architecture technology. Along with the symposium, a “Building a House with Friendship and Kindness ” exhibition was held to represent the project completed in Tan-nan Village.

## 6.Conservation Project on the Paper Matrix-Moldy Papier-Mâché by Commission

One of the museum's collections- “paper matrix” was moldy and distorted by water stains before being acquired. In order to properly conserve and enhance the work, the museum asked Ms. Fei-wen Tsai, Associate Professor of the Graduate Institute of Conservation of Cultural Relics, Tainan National College of The Arts, to conduct a six-month conservation project for the moldy paper matrix and record how the pieces were repaired. The museum also asked another company to film the whole process.



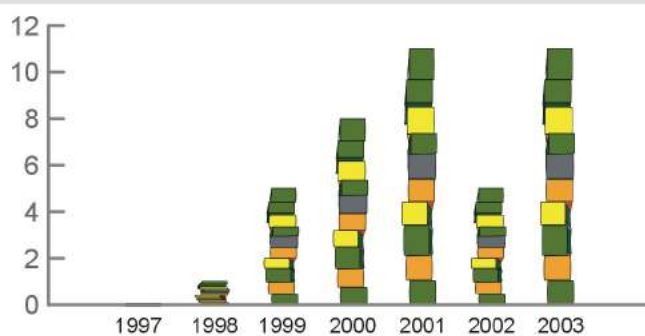
## 7. Inter-museum Cooperation

This year, the museum undertook 11 projects with the following organizations: the Department of Aeronautics and Astronautics, National Cheng Kung University, Taiwan Creativity Development Association and Industrial Development Bureau, Ministry of Economic Affairs, three projects with the Kio-A-Thau Culture Society, two projects with the Graduate Institute of Conservation of Cultural Relics, Tainan National College of The Arts, two projects with the British Council, Taipei, and one project with the Center for Disease Control of Department of Health.

Inter-museum Cooperation Projects over the Years

Year	1997	1998	1999	2000	2001	2002	2003
Number	0	1	5	8	11	5	11

Statistics of Inter-museum Cooperation Projects over the Years



## II. Exhibition Planning and Theater Management

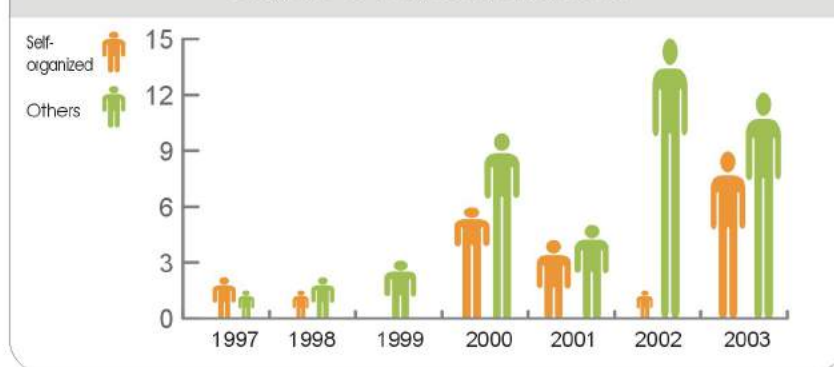
### (1) Integrating Resources for Temporary Exhibitions to Improve Quality

This year, the museum held 21 temporary exhibitions. Among which, 9 projects were self-organized by the museum and 12 were held in cooperation with other institutions. In addition, for the museum objective to enhance interaction between temporary exhibitions and permanent exhibitions, five exhibits were selected to become permanent exhibits. The museum also used external resources, which accounted for 42% of total exhibition spending as well as existing resources, which accounted for 17% of the total exhibition spending.

Statistics of Temporary Exhibitions

	1997	1998	1999	2000	2001	2002	2003
Self-organized	2	1	0	4	4	1	9
Others	1	2	3	10	5	15	12

Diagram of Temporary Exhibitions



### (2) Entrusting of the Multimedia World for Better Operation Performance

On August 12th, 2003, the museum signed a contract to entrust the operation of the Multimedia World which was opened to the public on October 25th. For mutual benefit, the museum actively provides the contractor with all the necessary assistance, which creates a unique model of management.

### (3) Careful Selection of Movies for Technology Education and Entertainment

In order to select quality movies for visitors, a film selection committee was formed and selected a total of five movies including 2D movies “the Mystery of Flying”, “Dr. Jane Goodall's Wild Chimpanzees” and “Speed” as well as 3D movies “Merry Christmas” and “Save the Planet” to better meet the demands of the audience.

### (4) Major Temporary Exhibitions

#### 1. The Exhibition of A Rhapsody of Kites

Organized by the museum, this special exhibition displayed different aspects of kites, which included the history of kites, the culture of kites, life with kites, different types of kites, the material, technology, principles of making kites, and kite festivals. The year 2003 was the centennial anniversary of man power flight, which marked an important point in aviation history. At the same time, one should not forget that the first man-made flying object, the kite, was invented by the Chinese. Hence, the museum borrowed 128 kites from a famous kite maker, Mr. Jing-jhen Huang, to provide visitors with physical examples of the abstract principles. The museum also received sponsorship from the DuPont Company in Taiwan. The special exhibition was held from November 7th, 2003 to March 21st, 2004.

#### 2. The Exhibition of Train Models Festival

Organized by the museum, this special exhibition displayed various train models and provided visitors with a chance to see the evolution of trains and to understand the locomotive principles of a train. In the exhibition, one can see all types of steam trains as well as streamline trains starting from 1930. The museum also invited experts and train model collectors to explain the principles of train technology and tell stories regarding different trains. The special exhibition was held from July 4th to August 31st, 2003.



### 3. The Exhibition of Ancient Chinese Locks

Organized by the museum, this special exhibition was divided into two themes: “A Good Friend for a Safety Life” and “A Good Tool for a Beautified Life.” Both of which exhibited sophisticated and exquisite ancient Chinese locks. Visitors were surprised to see the great achievement of ancient Chinese machinery and technology through a small necessity in our daily life—the lock. The Ancient Chinese Machinery Cultural Foundation provided 52 ancient Chinese locks for the exhibition and designed interactive character-locks and traditional door locks for visitors to operate on the spot. The exhibition was held from June 27th, 2003 to February 28th, 2005.

### 4. The Exhibition of the Invisible Enemy--SARS

Launched simultaneously with the Taipei City Government and the National Museum of Natural Science, this exhibition, displayed the natural history of the virus, types of virus, virus and human diseases, new viruses and the counterattack of our natural environment—“Advances can Lead to Comfort as Well as Potential Danger”. The aim of the exhibition was to educate the public about the SARS virus. One could find a model of the corona virus in the exhibition as well as in the film “SARS—The Killer Bug” produced by BBC Channel 4. In addition, the museum also provided other useful information such as “Strategies Against Viral Disease”, “Why Can't We Eliminate Viruses” and “SARS Prevention”. The exhibition was held from May 16th to November 20th, 2003.



●「看不見的敵人—SARS病毒」特展

## 5. The Exhibition of “The History of Anti-malaria in Taiwan—Post-SARS Society Review”

Based on thorough historic research, dialogue design and a variety of information, this exhibition illustrated the interaction between human beings and mosquitoes for people in Southern Taiwan who were affected by dengue fever. The exhibition also provided us with a great opportunity to take a closer look at mosquitoes as well as the relationship between human beings, mosquitoes and the environment. The exhibition was held from August 26th to October 26th, 2003. On October 28th, the exhibition was moved to Kaohsiung City Hall to be exhibited until November 26th.

## 6. The Exhibition of Digital Life for Children and Family

Launched with the Institute of Information Industry, this exhibition aimed to encourage the public to use computers and to lay a solid foundation for information education. The exhibition displayed “Great Tools”, the “National Palace Museum On-line”, “Digitalized Family”, “No Way to Hide”, “Robot and Digital Pet”, “e-Elementary School” and “Winners of the 6th Annual Contest of Children Information Applications”. In addition, visitors also enjoyed various activities, such as the robot show and the digitalized pet show, e-classroom and “I am the Chef”. Chunghwa Telecom helped to provide the Internet world for the promotion of museum exhibitions. The exhibition was held from January 24th to March 2nd, 2003.



●「兒童資訊總動員—大手牽小手數位生活e齊走」特展

## 7. The Miniature Art Exhibition of “Modern Creation in Old House”

Launched with the Miniatures Museum of Taiwan, this special exhibition displayed 20 works selected from the Third Annual Competition of Dollhouses— “Modern Creation in Old House” and eight collections from the Miniatures Museum of Taiwan. The exhibition which was held from July 19th to November 16th, 2003 aimed to renovate old architecture in Taiwan.

## 8. The Exhibition of “A Vision to the Flight Dream—the Centennial Anniversary of Man Power Flight”

Launched with China Airlines and the China Times, the special exhibition used virtual reality, real objects, literature and historic information, a 3D movie, model and interactive games to reveal how human beings fulfilled the dream of man power flight. Visitors saw the glider designed by Leonardo da Vinci, and the inventions of helicopters, parachutes and supersonic airplanes which all helped to understand how human beings finally fulfilled the dream of flying in the sky. The exhibition was held from October 25th to December 7th, 2003.



●「夢想起飛—人類動力飛行百年紀念」特展



### III. Promotion of Science and Technology Education

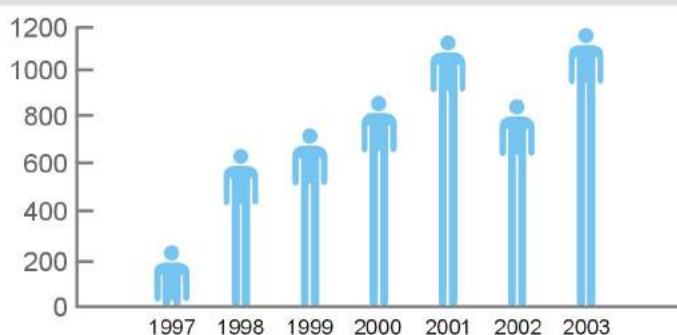
#### (1) Various Science and Technology Education Programs

In the year 2003, the museum held 997 science and technology education activities and attracted 171,154 participants.

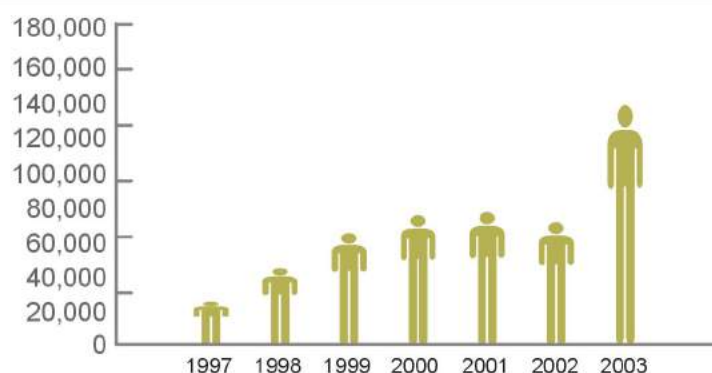
Statistics of Activities of Science and Technology Education

Item \ Year	1997	1998	1999	2000	2001	2002	2003
Scheduled Programs	219	564	636	753	970	741	997
Number of Participants	23,026	54,196	79,431	92,437	94,551	87,070	171,154

Diagram of Activities of Science and Technology Education



Participants in Activities of Science and Technology Education



## (2) Major Achievement

### 1. The Activities for the “Taiwan Railway Festival” Exhibition

In 2003, the museum held 151 programs, which included 67 tours on the little steam train, 76 DIY holiday programs, 2 folk activities and 6 lectures. Approximately 51,884 people participated in these events. The activities started from December 11th, 2002 and ended on August 31st, 2003.

### 2. The Activities and Exhibition for the Art of Dynamic Corrugated Board

Along with the exhibition, the museum held 4 teacher workshops and 75 guided tours and DIY activities. A total of 5,251 people participated in these activities. In addition, 11,496 people participated in the 144 DIY activities. The exhibition was held from April 5th to August 31st, 2003.



### 3. Science Week 2003- “Challenges for Sustainable Taiwan—Rivers and Oceans”

Sponsored by the National Science Council, the exhibition focused on the Kaoping Stream—the lifeline of southern Taiwan and designed 9 programs including a science demonstration of the “Water World” as well as DIY games such as “Secrets of the Planet”. A total of 5,000 people participated in these events. The activities were held from August 20th to November 30th, 2003.

### 4. Activities for the Centennial Anniversary of Man Power Flight

One hundred years ago, the Wright brothers successfully made the first heavier-than-air craft that fulfilled man's dream of flying. To encourage more teenagers to study aviation and space technology, the museum cooperated with the Department of Aeronautics and Astronautics of National Cheng Kung University and China Airlines to launch an activity called “Secrets of Flying”, which included 10 scientific games related to flying, such as “Span the Wings”, “Straw Airplane”, “Film Box Parachutes”, “Carp Kite”, “Paper Dragonfly”, “Paper Cannon”, “Air Cannon”, “Paper Airplane”, “Match Rocket” and “UFO”. The 21 events attracted 36,500 people. The activities were held from October 25th to December 28th, 2003.



●「飛行百年紀念」系列科教活動

●萊特兄弟FLY-1飛機1/2比例模型

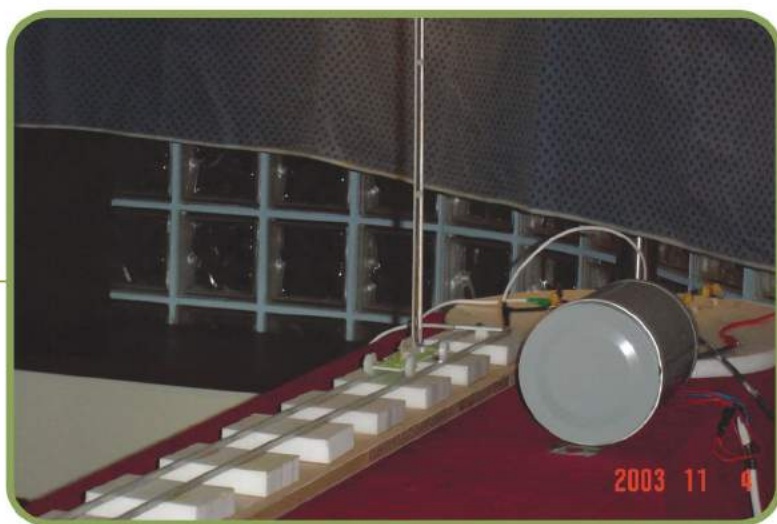


## 5. Development and Creation of Teaching Aids and Materials

To enhance the outcome of science education, researchers and technicians of the museum designed, developed, improved and/or manufactured a variety of teaching aids, including a loco-horse, a plasma thruster, circuit puzzles, Morse code transmitters, an electrostatic generator, a Franklin wheel, magnifier cameras, periscopes, rain and landslide alert, shooting floating balls, water dragons, “see the world from the tube”, gyroscopes, recycled corrugated boards, recycled egg boxes, straw cartesian divers, application of revolution principle, PET bottle appliances for vase, dry flowers and leaves, jelly candles and more.



● 電路拼圖



● 電漿推進器

## 6.Activities Related to Exhibitions

◎For the “nature and life technology” curriculum, the museum planned activity projects for schools to reserve DIY programs. A total of 92 programs were provided to 3,650 people and 640 teachers participated in 18 related workshops.

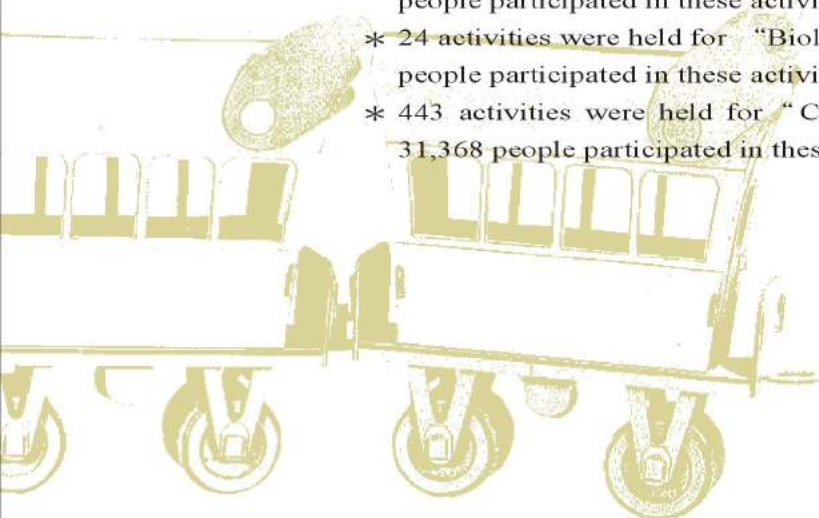
◎Activities Related to temporary Exhibitions:

- \* For the “Big Panda” exhibition, the museum held 35 “Making Panda Mask” activities and served 3,661 people.
- \* For the exhibition “2003 Miniature Art” the museum held a total of 186 teacher workshops, lectures and DIY activities for 6,385 participants.
- \* For the exhibition of the “Centennial Anniversary of Man Power Flight” , the museum held 21 activities and 36,500 people participated in these events.

◎The museum conducted the “High School Innovation Competition Using a Superconductor for Magnetic Levitation” and “Power Tech: Teenager Technology Innovation Competition” and held 18 activities. A total of 1,497 people participated in these events.

◎Activities Related to the Exhibition Halls:

- \* 31 activities were held for “Food Industry” and 1,929 participated in these activities.
- \* 6 activities were held for “Electronic World” and 800 people participated in these activities.
- \* 73 activities were held for “Transportation and Civilization” and 4,345 people participated in these activities.
- \* 56 activities were held for “Computer and Communication” and 3,722 people participated in these activities.
- \* 12 activities were held for “Power and Machines” and 1,589 people participated in these activities.
- \* 24 activities were held for “Biological Technology” and 1,619 people participated in these activities.
- \* 443 activities were held for “Children's Science Center” and 31,368 people participated in these activities.



## IV. Public Affairs & Guided Tours

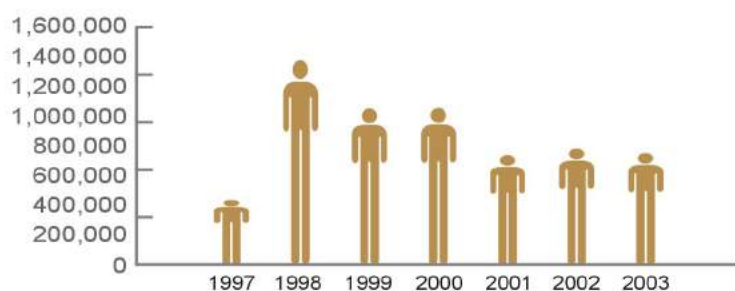
### (1) Increase the Number of Visitors by Enhancing the Quality of Public Facilities and Service

With resources from society, the museum held community activities to establish an efficient interaction mechanism. Education and training programs along with tours were provided to intensify the work efficiency of the staff. The museum also plans to adopt diversified marketing strategies to attract more visitors. This year, a total of 941,580 people visited the museum, which was 9.1% less than last year.

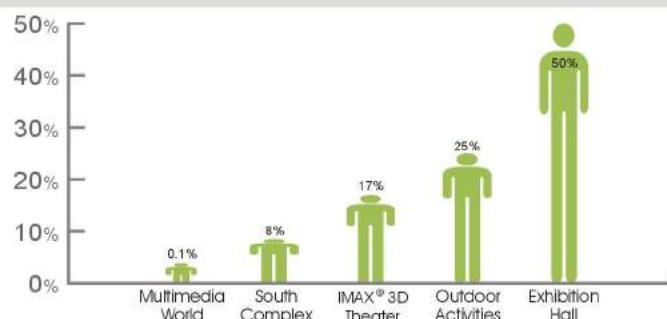
Statistics of Visitors

Year	Exhibition Halls	IMAX®3D Theater	Multimedia World	Charged Temporary Exhibitions	South Complex	Outdoor Activities	Total Number of Visitors
1997	271,323	43,622	0	17,607	8,841	9,500	350,893
1998	860,593	332,993	0	50,654	101,584	134,992	1,480,816
1999	657,833	255,188	0	0	114,135	15,814	1,042,970
2000	659,409	241,108	8,653	156,480	107,908	46,433	1,219,991
2001	460,152	168,313	16,610	1,925	107,653	89,363	846,149
2002	489,756	208,288	1,402	134,278	131,093	71,420	1,036,237
2003	469,200	160,457	327	0	74,677	236,919	941,580

Diagram of Visitors



Distribution Diagram of Visitors of Different Facilities





## (2) Major Achievement

### 1.Guided Tours and Science Demonstrations to Enrich Visits

The museum developed a variety of visiting programs for junior high school students, elementary school students, as well as kindergarten and pre-school students that encouraged them to visit the exhibition halls, watch movies, join in science demonstrations, and enjoy DIY activities.

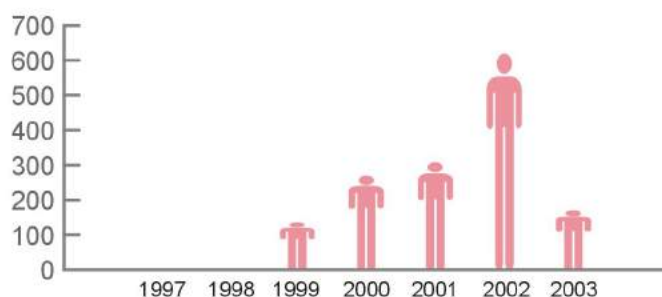
Statistics of Participants of Guided Tours and Science Demonstrations

	1997	1998	1999	2000	2001	2002	2003
Mandarin Guided Tours	28,479	146,396	107,296	153,469	88,325	80,254	95,254
Foreign Languages Guided Tours	--	--	351	721	531	433	496
School Group Tours			85,016	101,738	67,705	68,015	59,631
Science Demonstrations	--	--	5,431	11,148	13,080	10,668	8,884
Robot Show	--	38,710	23,603	23,646	26,588	35,946	32,551
Cool Bo Show	--	--	--	--	--	4,450	--
Science DIY	--	--	--	--	--	62,946	--
Meet the Puppets	--	--	--	--	--	4,872	--
Total	28,476	185,106	221,697	290,722	196,229	267,584	196,816

Statistics of Science Demonstrations & DIY Activities Over the Years

Year	1997	1998	1999	2000	2001	2002	2003
Scheduled Programs	0	0	135	269	308	619	170

Diagram of Science Demonstrations & DIY Programs



## 2. Development of Science Demonstrations

Starting from 1999, the museum launched science demonstration activities of various themes and used experimental instruments to enhance communications with the general public and illustrate simple scientific knowledge. Visitors also had chances to “see it to believe it” and to “experience it”. By 2003, the museum had developed science demonstrations of 13 different themes.

Science Demonstrations Developed over the Years					
Year	1999	2000	2001	2002	2003
New Themes for Science Demonstrations	1.The Secret of Franklin 2.Introduction of Satellites 3.Liquid Nitrogen 4.The Amazing Air	1.The Water World(1)	1.The Messenger of the Nature-Biological Communication 2.We are All Linked-Electromagnetic Communication 3.The Summer of Glowworm	1.Lifeguard of Dinosaurs 2.Like Father, Like Son	1.The Story of PET 2.Breath of the Nature 3.The Water World (2)

## 3. Marketing and Promotional Events

In cooperation with special exhibitions, major festivals and instructional activities of the Ministry of Education, the museum held 111 marketing and promotional events this year.

Statistics of Marketing and Promotion Activities							
Types Year	Special Exhibitions	Festivals	Concerts	Co-organized or Assisted Activities	Community Activities	Community Movie Previews	Total
2001	19	3	54	14	18	18	126
2002	84	1	12	8	5	19	129
2003	19	3	9	60	10	10	111

#### 4. Community Activities to Establish an Amiable Relationship with the Community

This year, the museum sponsored Lantern Festival activities for the community that attracted 1,100 people along with six “Get Online” learning activities that attracted 175 residents from the community. In addition, with an ID to show their residency, residents of the community could visit the exhibition halls free of charge, and this year 12,706 residents visited the museum for free. The museum also held 10 movie previews and 2,190 residents came to see the movie previews.

#### 5. Utilize the Power of Media and Extend Marketing Strategies

Through press conferences, news releases and participation in media events, the museum worked to communicate the information of all the special exhibitions and activities to the public and established good relationships with the mass media. This year, the museum cooperated with Education Radio and the China Times to launch different special exhibitions such as “Peoples of the World” and “A Vision to the Flight Dream”. News related to the museum was reported by the press 546 times.

Statistics of Reports on the Press

Year	1997	1998	1999	2000	2001	2002	2003
Number	354	502	308	515	292	506	546

Statistics of Reports on the Press in 2003

Month Media	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Newspapers	34	29	24	47	36	44	57	35	23	70	79	53	531
Magazines	1	4	1	2	5	1	0	0	0	0	1	0	15
Total	35	33	25	49	41	45	57	35	23	70	80	53	546



## 6. Different Orientations and Discounts for Different Groups

This year, the museum provided two programs for the members of “Friends of NSTM” to have privileges to visit exhibitions and participate in the coordination meeting. The museum also sent out newsletters and exhibition information to members, which attracted 454 school members. During summer vacation, the museum held four training programs for 34 school representatives from 19 junior high schools and elementary schools. The representatives started promotional activities in September. Meanwhile, the museum also cooperated with the management committees of buildings and security companies in Kaohsiung to promote the “2003 Fly Season Activities” for concentrated housing and provided these families with group discounts.

## 7. Integrate Social Resources and Reduce the Expenditure of the Museum

This year, the museum received a total of 2,476,500 NT dollars from 12 institutions, including Chunghwa Telecom, Hanlin Inc., Mesa Music International Co., the Commission of Indigenous Affairs, Kaohsiung City Government, the Bureau of Education, Kaohsiung City Government, China Airlines, McDonald's Taiwan, Pig & Whistle Restaurant, the National Museum of Marine Biology & Aquarium, Kang Shyuan Publishing Company, Education Radio and the Discovery Channel.

## 8. The Museum Audience 2003 Conference

On December 1st, 2003, the museum held the first academic symposium that focused on museum visitors in Taiwan. The symposium aimed to enhance inter-museum cooperation and exchange, help museum staff to understand the needs of their visitors and encourage more people to conduct researches on museum visitors. The symposium included two keynote speeches, two paper presentations and discussion sessions. A total of 115 people participated in the symposium.

## 9. Joining the Asia Pacific Network of Science & Technology Centers (ASPAC)

The museum became a formal member of the Asia Pacific Network of Science & Technology Centers (ASPAC) in April 2003. In July and December, information about the special exhibitions of the museum was published in ASPAC news. This helped to market the museum in the international arena.

## 10. Cooperation with Schools and Utilization of Social Resources

The museum offered internships for college students during summer and winter vacations. Students from senior high school to college can apply for social service hours in the museum during extracurricular time. This year, 449 students served in the museum.

## 11. Forming a Consultation Group for Exhibition Halls

The museum proposed the “Cooperation Project between NSTM & Colleges for the Establishment of a Consultation Group for Exhibition Halls” which aimed to integrate the expertise of academic professionals and the human resources from our guided tours to enrich the content of the exhibition halls. In addition, the consultation group can help the museum to collect a variety of exhibition information and diversify museum tour service. The museum invited professors from various colleges and universities in southern Taiwan to be consultants and 71 professors agreed to join the consultation group.

# Annual Report 2003

經費運用





# Budget Management

## I .Overview of Disbursement

### (1)Budget for the Year 2003

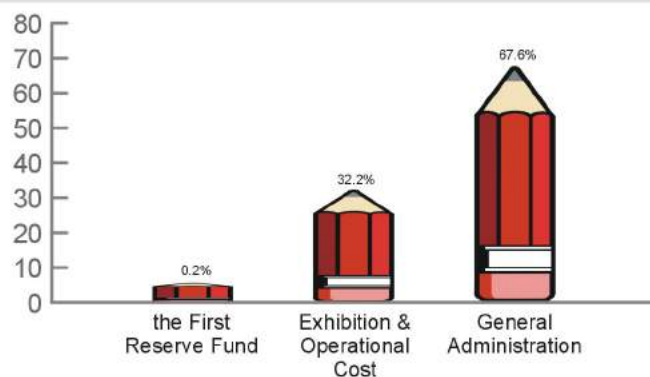
The budget for the year 2003 was 295,026,000 NT dollars, which included 199,413,000 NT dollars for general administration, 95,113,000 NT dollars for exhibition and operational cost and 500,000 NT dollars as the first reserve fund.

Spreadsheet of Annual Budget and Disbursement							
Item Year	General Administration			Exhibition and Operational Cost	General Architecture and Equipments	the First Reserve Fund	Total
	Subtotal	Personnel	Business				
1997	101,531	34,245	67,286	80,633	1,507,115	-	1,689,279
1998	99,905	37,050	62,855	86,027	580,171	-	766,103
1999	144,771	102,933	41,838	162,201	148,850	-	455,822
2000 (One year)	216,492 (144,328)	151,398 (100,932)	65,094 (43,396)	306,895 (204,597)	53,200 (35,467)	500 (333)	577,087 (384,725)
2001	147,120	103,375	43,745	172,384	800	500	320,804
2002	208,742	117,060	91,682	96,461	-	500	305,703
2003	199,413	117,311	82,102	95,113	-	500	295,026

Notes:

1. The year 2000 actually started from July 1st, 1999 and ended on December 31st, 2000.
2. Source: Annual Budget Statements.

Ratio of Annual Budget and Disbursement of 2003



## (2) Budget of “Exhibition and Operational Cost”

A total of 95,113,000 NT dollars was allocated to this project, 8,395,000 of which was allocated to collection and research of technological objects, 40,499,000 for exhibition planning and research, 16,515,000 for public affairs and guided tours, 11,469,000 for promotion of books and audio-visual media as well as information presentation and processing, 18,235 for the promotion of science and technology education.

Budget Allocation of Exhibition and Operational Cost

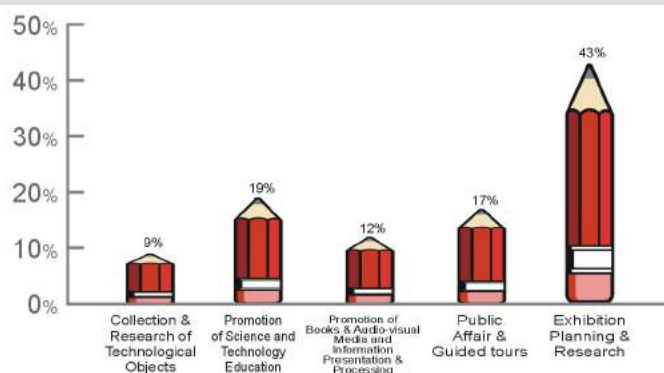
Unit: thousand NT dollars

Item Year	Collection & Research of Technological Objects	Exhibition Planning & Research	Public Affairs & Guided Tours	Promotion of Books & Audio-visual Media and Information Presentation & Processing	Promotion of Science and Technology Education	Total
1997	2,062	17,504	10,239	24,047	26,781	80,633
1998	2,062	13,011	9,039	16,400	45,515	86,027
1999	2,222	61,244	39,786	14,100	44,849	162,201
2000 (One year)	19,376 (12,917)	112,859 (75,239)	73,061 (48,707)	29,484 (19,656)	72,115 (48,077)	306,895 (204,597)
2001	10,042	62,657	44,754	15,040	39,891	172,384
2002	8,983	36,679	18,415	12,567	19,817	96,461
2003	8,395	40,499	16,515	11,469	18,235	95,113

Note:

1. The year 2000 actually started from July 1st, 1999 and ended on December 31st, 2000.
2. Source: Annual Budget Statements.

Budget Allocation for Exhibition and Operational Cost in 2003



## II. Overview of Revenue

The annual revenue of this year reached 67,020,000 NT dollars, which included 36,340,000 of real income, 2,132,000 from the collection payment for science and technology education activities, 28,548,000 from subsidies. Among which, the real income includes 231,000 from compensations, 76,000 from supply revenue, 13,811,000 from admission fees of exhibition halls, 9,198,000 from the IMAX® 3D Theater, 12,698,000 from lending of ground, equipments and others and 326,000 from miscellaneous revenue.

Statistics of Annual Revenue

Unit: thousand NT dollars

Item Year	Compensation	Supply	Admission of Ground and Equipments			Miscellaneous Revenue	Total
			Exhibition Halls	IMAX® 3D Theater	Ground Lending and Others		
1997	-	221	-	-	7	5	233
1998	22,142	511	47,275	13,583	16,476	601	100,588
1999	1,049	77	30,250	17,537	24,537	3,993	77,443
2000	268	259	35,518	25,852	15,962	1,162	79,021
2001	481	79	15,169	10,692	11,513	752	38,686
2002	572	49	17,213	12,359	12,874	801	43,868
2003	231	76	13,811	9,198	12,698	326	36,340

Note:

1. The year 2000 actually started from July 1st, 1999 and ended on December 31st, 2000.
2. Source: Annual Final Reports, Statistics of Revenue of Exhibition Halls and IMAX® 3D Theater.

Statistics of Annual Revenue

Unit: thousand NT dollars

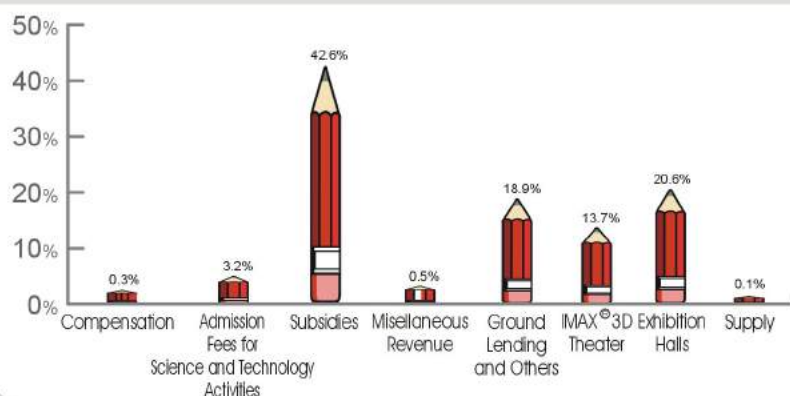
Item Year	Real Income	Science and Technology Education Activities (A)	Subsidies (B)	Total (C)	Final Accounts (D)	Income/ Expense Ratio (%)
1997	233	-	157	390	1,648,126	0.02%
1998	100,588	918	8,769	110,275	760,600	14.32%
1999	77,443	1,300	16,850	95,593	428,109	21.42%
2000	79,021	6,270	16,926	102,217	547,450	17.91%
2001	38,686	6,228	6,762	51,676	305,937	16.20%
2002	43,868	6,544	20,745	71,157	288,824	22.51%
2003	36,340	2,132	28,548	67,020	287,695	21.05%

Note:

1. The year 2000 actually started from July 1st, 1999 and ended on December 31st, 2000.
2. Sources: (1) annual real income: Annual Final Statements; (2) fee for science and technology education activities: ledger of collection payments in the accounting book; (3) subsidies: ledger of collection payments in the accounting book.
3. Income/Expense Ratio =  $C/(A+B+D)$



Ratio of Annual Revenue of 2003



### III. Budget and Implementation

Annual Forecasted and Actual Income

Unit: thousand NT dollars

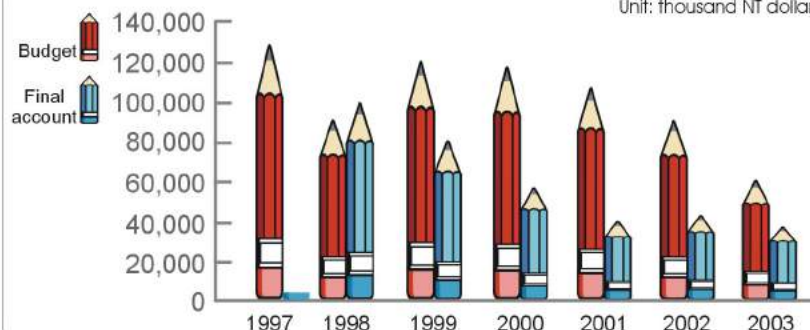
Item Year	Total			Compensation Income		Supply		Ground Lending and Others		Miscellaneous Revenue	
	Budget	Final Account	Implementation Rate	Budget	Final Account	Budget	Final Account	Budget	Final Account	Budget	Final Account
1997	127,954	233	0.2%	49	0	700	221	127,200	7	5	5
1998	93,950	100,588	107%	500	22,142	600	511	92,800	77,334	50	601
1999	124,656	77,443	62%	500	1,049	500	77	123,106	72,324	550	3,993
2000 (One year)	183,654 (122,435)	79,021 (52,682)	43%	500 (333)	268 (179)	500 (333)	259 (173)	182,604 (121,736)	77,332 (51,555)	50 (33)	1,162 (775)
2001	106,407	38,686	36%	500	481	500	79	105,357	37,374	50	752
2002	89,080	43,868	49%	500	572	500	49	88,030	42,446	50	801
2003	59,003	36,340	62%	500	231	500	76	57,953	35,707	50	326

Note:

1. The year 2000 actually started from July 1st, 1999 and ended on December 31st, 2000.
2. Sources: Annual Budget Statements and Final Statements

Annual Forecasted and Actual Income

Unit: thousand NT dollars



## Annual Expenditure and Implementation

Unit: thousand NT dollars

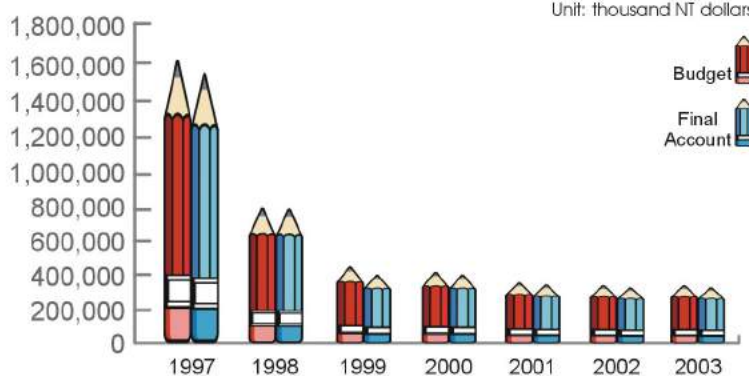
Item Year	Budget			Final account			Implementation Rate (%)
	Total	Current Account	Capital Account	Total	Current Account	Capital Account	
1997	1,689,279	151,651	1,537,628	1,648,126	110,501	1,537,625	98%
1998	766,103	141,932	624,171	760,600	136,637	623,963	99%
1999	455,822	282,482	173,340	428,109	254,373	173,736	94%
2000 (One year)	577,087 (384,725)	468,747 (312,498)	108,340 (72,227)	547,450 (364,967)	440,218 (293,479)	107,232 (71,488)	95%
2001	320,804	300,831	19,973	305,937	283,338	22,599	95%
2002	305,703	288,971	16,732	288,824	270,885	17,939	94%
2003	295,026	279,218	15,808	287,695	270,331	17,364	98%

Note:

1. The year 2000 actually started from July 1st, 1999 and ended on December 31st, 2000.
2. Sources: Annual Budget Statements and Final Statements

## Annual Expenditure and Implementation

Unit: thousand NT dollars



## Museum Chronology for 2003

Date	Summary
2003.01.02	The library was moved to the south complex and was officially opened to the public.
2003.01.03	Mr. Xinmiao Zheng, director of Beijing's Palace Museum visited the museum.
2003.01.04	84 graduate students who served as voluntary interpreters participated in the first seminar and training program.
2003.01.22	Accompanied by Dr. Mao-hsiung Lin of Central Police University, Dr. and Mrs. Henry Lee visited the museum and participated in a symposium to understand how the museum planned the special exhibition of forensic science.
2003.01.22	The museum established "the Advisory Committee" .
2003.03.24	The museum held the 2003 Commendation of Volunteers. 178 volunteers who have worked for the museum for five years received their golden award.
2003.04.01	The museum changed its Chinese abbreviation to Technology Museum (with the agreement of the Ministry of Education).
2003.04.03 2003.04.04	In cooperation with the Graduate Institute of Conservation of Cultural Relics, Tainan National College of The Arts, the museum held "The Workshop of Preservation and Conservation of Fiber-made Technological Objects" , which was the first workshop of this type in Taiwan.
2003.04.05	"The Art of Dynamic Corrugated Board" opened to the public.
2003.04.11	The 22nd Kaohsiung City Science Exhibition of Junior High and Elementary Schools was held in the museum for the first time.
2003.05.06	The museum was admitted into the ASIA PACIFIC NETWORK OF SCIENCE & TECHNOLOGY CENTERS (ASPAC) as a member.
2003.05.13	In response to the SARS epidemic, the museum changed the management policy for the exhibition halls and IMAX® 3D Theater to prevent the disease from spreading.
2003.05.14	The museum signed an agreement to join a strategic alliance with National Feng-Shang Senior Commercial & Industrial Vocational School.
2003.05.16	The museum launched an outdoor special exhibition on SARS simultaneously with the National Museum of Natural Science, Taipei City Government, Dr. Sun Yet-san Memorial Hall, and National Taiwan Museum.
2003.05.19	The museum ran a special team to move the Rice Husker, one of the largest collections, from the lobby to the "Power and Machines" gallery.
2003.05.26	The museum cooperated with the Kio-A-Thau Culture Society to hold a seminar on personnel cultivation for the local museum project.
2003.06.20	The advisory committee of the museum held its first meeting.
2003.06.24	The museum held the 43rd Annual Science Exhibition of Junior High and Elementary Schools.
2003.07.11	The museum held "2003 Cultural Forum-Serial Lectures on World Heritage" commissioned by the Council for Cultural Affairs.
2003.07.19	The Miniature Art Exhibition of "Modern Creation in Old House" opened to the public.
2003.07.24	With the approval of the Ministry of Education, the museum shut five permanent exhibition galleries : "Measurement and Technology" , "Metal Industry" , "Computerized World" , "Children's Science Center" and "Utilization of Energy" .
2003.07.31	Information on the exhibitions of "Ancient Chinese Locks" and "Miniature Art" was published in ASPAC news in July.
2003.08.12	The bid of the entrusting project of the Multimedia World was won by Cyber Catalyst Net. The agreement was signed and certified by the court.



2003.08.16	In cooperation with the Exhibition Division, the docents in Visitor Services Division completed the dubbing for the documentary films of 18 exhibition halls.
2003.08.19	Chief of the Personnel Office, Mr. Chan-chieh Tseng assumed office.
2003.08.22	Opening of the Science Week 2003 - "Challenges for a Sustainable Taiwan-Rivers and Oceans"
2003.08.26	Opening of the special exhibition "the History of Anti-malaria in Taiwan - Post-SARS Society Review"
2003.09.01	The Collections & Research Division was formally established with associate curator, Mr. Yuh-fong Wang as the chief.
2003.09.20	The museum held a symposium on "Do It Ourselves-Review of Construction Collaboration in Tan-nan Village"
2003.10.05	In cooperation with "Scientific American", the museum held the "2003 Science and Technology Education Camp-Present Tense of Science".
2003.10.12	Deputy Director-general of the museum, Mr. Shiunn-shyang Chen led a group of museum staff to visit various museums in San Francisco and implemented the "Research on Experience of Promoting Educational Activities in the Science Museum" project.
2003.10.17	The museum helped the Academia-Industrial Cooperation Center of National Kaohsiung University of Applied Sciences to conduct the "2003 Theme Production Exhibition & Competition for Students of Colleges of Science & Technology."
2003.10.25	The Multimedia World of the museum was re-opened to the public.
2003.10.25	In cooperation with China Times, the museum held the Special Exhibition "A Vision to the Flight Dream-the Centennial Anniversary of Man Power Flight".
2003.10.25	China Airlines donated a retired JT9D jet engine whose flight hours have reached 55,519 hours.
2003.10.28	The special exhibition of the museum, "the History of Anti-malaria in Taiwan-Post-SARS Society Review" was toured to the Kaohsiung City Hall.
2003.10.30	The museum began restoration of a 1/2 model of the Wright brothers' FLY-1 craft and invited Vice President Annette Lu to the press conference.
2003.11.01	The teaching tool for hydropower windmills developed by research assistant, Mr. Jeng-chih Chen was patented by the Intellectual Property Office of MOEA (certificate number 206883).
2003.11.07	Opening of the special exhibition "A Rhapsody of Kites."
2003.11.07	Opening of the 2003 anniversary photography exhibition of NSTM.
2003.11.27 2003.11.28	In cooperation with the Graduate Institute of Conservation of Cultural Relics, Tainan National College of The Arts, the museum held the workshop of Preservation and Conservation of Films and of Photographs.
2003.11.12	The museum cooperated with the Industrial Development Bureau and Chinese National Federation of Industries to invite various industrial unions to participate in the orientation of the exhibition hall of Taiwan Industrial Development.
2003.12.01	The museum held the "Museum Audience 2003 Conference"
2003.12.05	The 1/2 model of the Wright brothers' FLY-1 craft was completed.
2003.12.08	The museum invited a visiting professor of Yunlin University of Science & Technology, Professor Gordon Turner-Walker, and American preservation expert, Dr. Elizabeth E. Peacock to give speeches in the museum.
2003.12.25	Professor Fei-wen Tsai, Assistant Professor of the Graduate Institute of Conservation of Cultural Relics, Tainan National College of The Arts, completed a six-month conservation project of paper matrix.
2003.12.31	The Chinese name of the IMAX® 3D Theater was changed as the "Big Screen Theater".



# Annual Report 2003

國立科學工藝博物館

Annual Report 2003

92  
年報

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