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## New Directions - Career Opportunities for Women in Science and Engineering (1981)

JoAnn M Fritsche Staff

*Women's Development Program - University of Maine*

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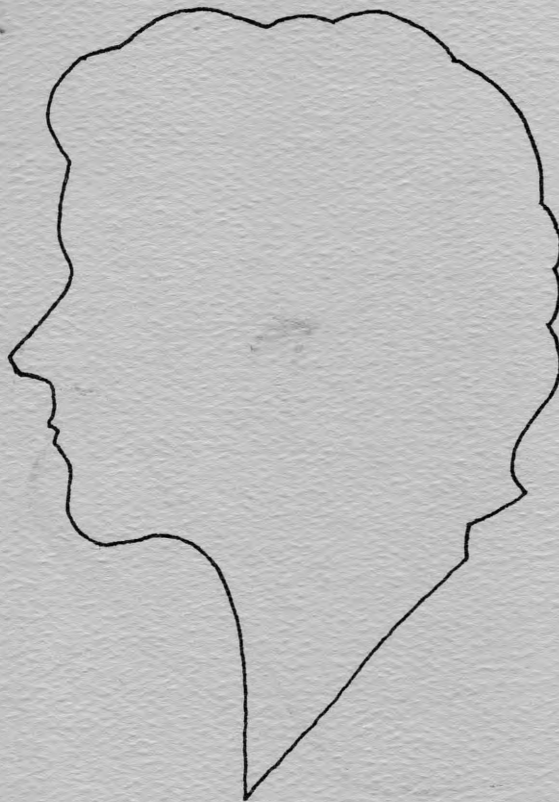
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# NEW DIRECTIONS



*Career Opportunities for Women in  
Science and Engineering*

N E W   D I R E C T I O N S :

Career Opportunities for Women in Science and Engineering

Developed By:

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Compiled and Illustrated By:

Kathleen A. Wall, Ph.D.

Σ 1981 Σ

## ACKNOWLEDGMENTS

The women whose names and suggestions appear in this book have taken much time to contribute valuable information, in spite of their formidable work schedules. Their commitment to helping others prepare for challenging careers made it possible for this book to be written.

Other individuals whose personal and professional assistance and support were very important to the development of this book include Dr. Ann Schonberger, Assistant Professor in Developmental Mathematics; Ms. Sandra Haggard, Marine Biologist, Electron Microscopist; Ms. Ann Lounsbury, Teaching Associate in Civil Engineering; Ms. Elaine Gershman, Associate Dean of the College of Arts & Sciences; and Dr. Bonnie Wood, Associate Professor of Zoology. Without the able assistance of Ms. Margery Wilson, who co-edited this book, and the thought, imagination, and untold hours devoted by Kathleen Wall, who compiled, edited, and illustrated the book, New Directions could not have been completed.

Financial assistance from the following sponsors enabled us to prepare, print, and distribute New Directions:

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College of Engineering & Sciences, UMO  
College of Life Sciences & Agriculture, UMO  
Department of Animal & Veterinary Sciences, UMO  
Junior League of Bangor

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TO STUDENTS:

Would You Rather

Solve mathematical games  
and puzzles

or

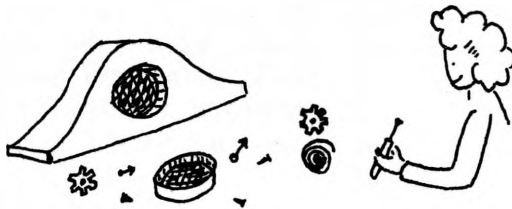
Read an English classic



Take a clock apart to  
see how it works

or

Visit an Art Museum



Study a colony of ants

or

Write a sonnet



If you chose the first example in each case, perhaps you should consider a career in science - as the women in this booklet did.

They (and perhaps you) have some qualities in common:

A curious and inquiring mind  
A desire to investigate and discover  
Patience and perseverance

"There is no such thing  
as a typical day in my  
life."

Patricia Powers Krupp  
Anatomist

These women are hard working, dedicated and very satisfied with the work they do. They have already been through what you might face if you choose a career in science. To help you decide, they offer helpful advice, make suggestions on how to prepare, and describe what their work is like.

"I can't think of  
anything I would  
rather do."

Ruth Kundsinn  
Microbiologist,  
Epidemiologist

"My work is exciting, fun, and some-  
times depressing when a new technique  
fails or when I realize I can't  
generate a complete answer with the  
tools at hand."

Jane E. Barker  
Hematologist

"Consider your priorities. Be  
realistic. Then go and do  
whatever you decide is important  
to you. If you believe in your-  
self and work hard, nobody can  
stop you."

Dina Jeannette  
Family Practice Resident

THINK ABOUT YOURSELF.



What are your interests?  
What are your dreams?  
What are your abilities and talents?  
How much time do you want to spend  
preparing for a career?  
What do you want your workdays to  
be like?

"You can do anything  
you want; don't let  
people discourage you."

Diane Korsower  
Family Practitioner

"Aim high."

Elizabeth Russell  
Geneticist

"A woman today can  
go as far as she  
desires."

Maryann Jerkofsky  
Virologist

"Think of yourself as a person  
with a goal and get there."

Elizabeth Barden  
Nutritionist

There is an infinite range of exciting possibilities open to women in the sciences. The women in this booklet are all scientists, but their jobs and lives vary greatly.

"I am convinced that anyone  
can do anything they really  
want to regardless of sex."

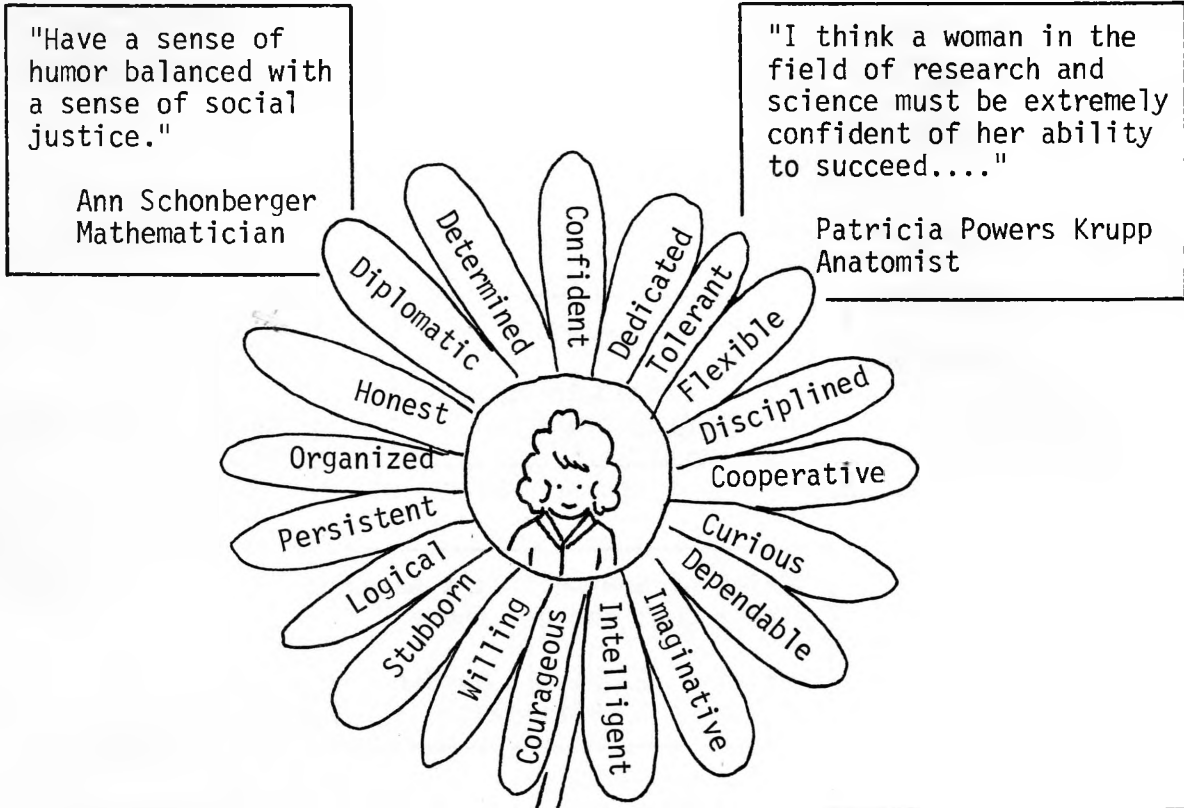
Donna Cassese-Haynes  
Forester

They may work in laboratories, in the field, or in classrooms;  
They may combine career with family or be single;  
They may have jobs that allow them time to pursue other interests; or  
They may be totally dedicated to the work they do.

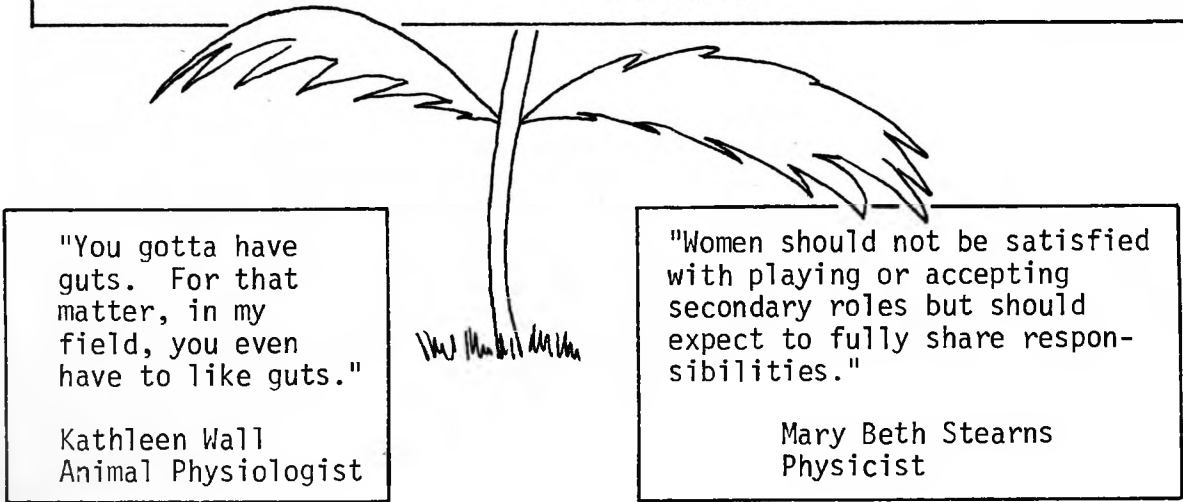


WHAT HABITS AND PERSONAL TRAITS SHOULD A BUDDING SCIENTIST CULTIVATE THAT LEAD TO A SUCCESS IN SCIENCE FIELDS?

Certain personal characteristics are consistently cited by the scientists as being important, not only for science, but also for any career field.



"Independence, not being afraid to stand alone and be different, stick-to-it-iveness and perseverance, patience, imagination, honesty in your work and with yourself...."  
Cynthia W. Peterson  
Astronomer



HOW SHOULD I PREPARE FOR A SCIENCE CAREER?

"Take courses that teach you how to read analytically, to write and speak. Also take mathematics and science."

Vera Kistiakowsky  
Physicist

"Most high school women don't study enough math and are thus way behind men when they enter college."

Ann Cowley  
Astronomer

"Select a field of great interest to you - because exciting work is extremely satisfying - and, conversely, the lack of exciting work makes for a deadly existence."

Ruth Kundsinn  
Microbiologist,  
Epidemiologist



"It is likely that in the future most women will have to work through most of their lives. So they should realize this and prepare for it in the same way men do."

Mary Beth Stearns  
Physicist

"I have tried to make education as diverse as possible."

Margie Lee Gallagher  
Marine Nutritionist

"Read, read, read...both in college and after graduation."

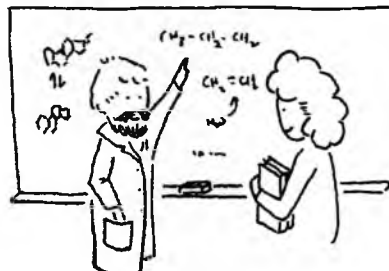
Cheryl A. Hutchins  
Electrical Engineer,  
Computer Scientist

"Keep an open mind. Take advantage of all that is offered. Be the best that you can, and...you'll be satisfied no matter what you decide to do."

Linda Sullivan  
Shift Supervisor

"College isn't for everyone. Recognize yourself, your ambitions, your goals, and go after them....Recognize the commitment that it will take to succeed in the area and ask yourself if you are willing to give that degree of commitment."

Linda Kling  
Poultry Nutritionist



"College is truly a broadening experience! Become involved in rap sessions of any forum which will expose you to new thoughts on a variety of issues."

Cheryl A. Hutchins  
Electrical Engineer,  
Computer Scientist

"Maintain good communication with your professors, and any women scientists you can find. Look for 'role models' and mentors."

Anne Swanson  
Biochemist

"Seek advice from women faculty members. Most have already encountered any problems you are having."

Ann Cowley  
Astronomer

"Every chance you get to work in the field of your choice, grab it - and do your best. You'll know after a couple of field experiences whether you're making a mistake or not."

Donna Burkart  
Biochemist

IS IT POSSIBLE TO MIX A CAREER WITH A FAMILY?

"A career and a family require a strong commitment, a very supportive husband, and a locally supportive community to be able to do both.

Nina M. Roscher  
Chemist

"Many women handle both very well. It does depend on having a husband who does not object to his wife's career."

Diana M. Juriloff  
Geneticist

"It is not the quantity of time spent with your family that is important but rather the quality."

Elizabeth Ann Sommers Busch  
Interior Designer - Graphics

"I have worked continually through marriage and children with no difficulties whatsoever. Of course, I always had good household help. In fact, I think I have done a better job with my children than most women since I always immensely enjoyed the time I spent with the children and they sensed this."

Mary Beth Stearns  
Physicist

"I did not, and think I still would not, mix career and small children. It can be done, but the price is high and requires a lot of give and take, stamina, determination, and sacrifice of other pleasures. It is a combination which I hope will grow ever easier."

Caroline Fenn  
Computer Programmer



"You need a true companion, not just a supportive husband to live through it."

Giulia Pancheri-Srivastava  
Physicist

"You will probably have to lower your standards of house cleaning and decorating, unless you are rich and can hire a lot of help."

Anne Swanson  
Biochemist

### Behavioral (Social) Sciences

Behavioral scientists apply scientific principles to the study of how people behave. Social scientists major in the University in the fields of economics, sociology, psychology, anthropology, or political science. They study how individuals, groups, cultures, societies or races develop, behave, and interrelate.

## Behavioral Scientist

What does a behavioral scientist do?

"I do psychotherapy with adults, marital therapy, group therapy, and psychological testing for hospitals and agencies."

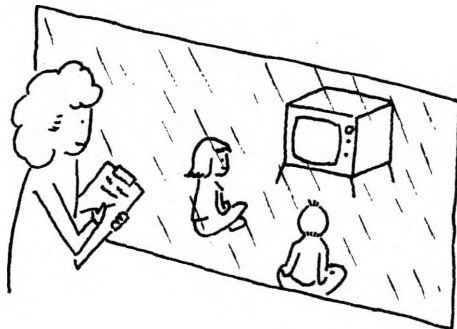
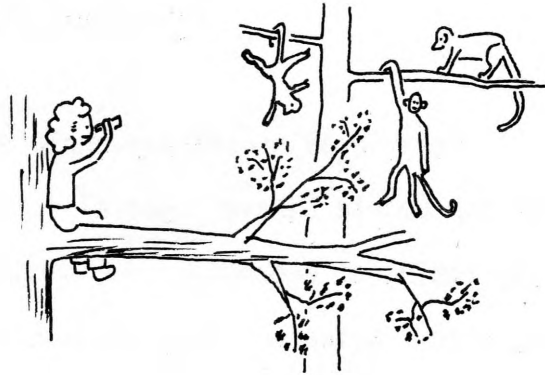
Cheryl Stanton Pelletier  
Clinical Psychologist

"My laboratory is the field; that is, living and participating in another culture. This can be a challenging and exciting experience."

Sandra Hoover  
Social Anthropologist

"My work includes opinion polling through questionnaires and interviews, and analyzing data using statistics and computers. Computer schedules sometimes require odd hours."

Suzanne Hart  
Political Scientist

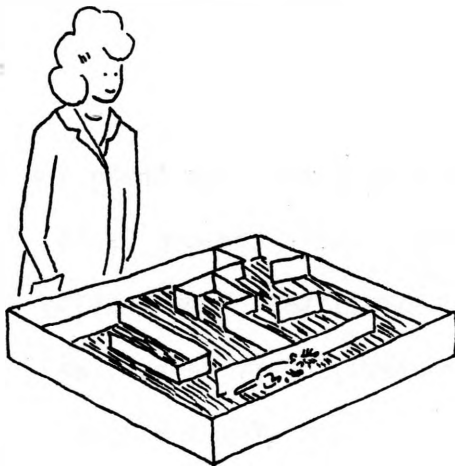


"I design and analyze research with children on sex-role stereotypes and effects of the mass media (e.g. T.V. programs). I also teach, engage in applied work (behavior analysis) in the field with the developmentally disabled, and co-direct a nursery school program."

Dana W. Birnbaum  
Developmental Psychologist

### How should I prepare?

If you want to be a behavioral scientist, you'll need at least one college degree, except for some research assistant positions which would include interviewing, coding, keypunching, and record keeping. A Bachelor's degree in one of the social sciences provides a good general education for branching out into other fields, including medical or biological research. A Master's degree is required for most professional jobs with government, schools, colleges, or businesses. For research and teaching at the college level, you would need a Doctorate.



"A genuine curiosity of the world and people around you is first and foremost. Math and science courses are vitally important, but must be coupled with the acquisition of good writing skills. A scientist must be able to communicate effectively."

Dana W. Birnbaum  
Developmental Psychologist

### Are there opportunities for women in behavioral science?

Women have always been active in the fields of behavioral science.

"A well trained woman in this field (psychology) has advantages. Women are seeking out female professionals more than they have in the past."

Cheryl Stanton Pelletier  
Clinical Psychologist



## Engineering

Whichever branch our million engineers work in - and there are over 25 major branches with 85 subdivisions - their concern is to solve practical problems. From designing satellites, home heating systems, automobiles and highways, to computers, heart valves, and pollution control and treatment devices, engineers affect almost every facet of our lives. In this section women who work as chemical, civil, electrical, and nuclear engineers tell us about their jobs.

## Engineer

### What does an engineer do?

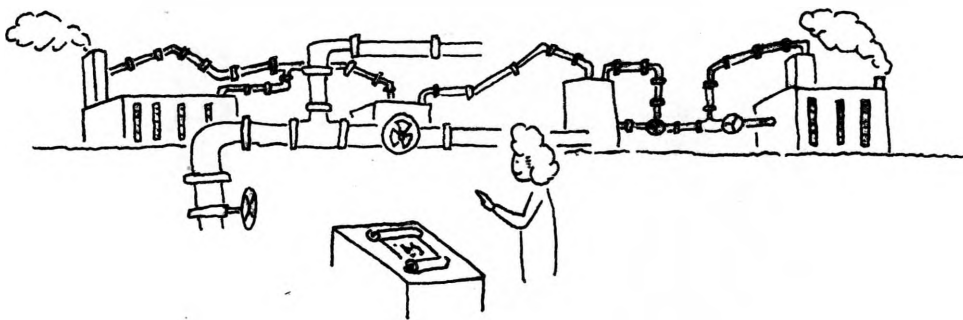
That depends, of course, on the branch of engineering.

### Chemical Engineers

This is a complex and diversified field; the nature of the work depends on the company. Most chemical engineers design equipment, determine manufacturing methods, and develop and test chemical processes.

"I have been doing a lot of equipment design - such as distillation columns, reactors, pumps, and piping. I have done several computer simulations of a systems design."

Sandra J. Chretien  
Chemical Engineer



## Civil Engineer

Women with this background can work in a variety of industries.

For example, a telephone company

"I coordinate with a contractor who is building a house the best method for installing telephone cables; meet with a State highway engineer to negotiate moving a pole line; take field notes for buried cable replacement; and engineer transmission requirements of new cable."

Cheryl Wixson  
Utilities Engineer

or a paper company.

"A typical day is hectic. I go to work at 7:00 a.m. The first thing I do is don my work boots, hard hat, pick up my respirator, an air testing device and assorted tubes and head for the field where I test for Chlorine gas leaks in the areas that contractors are working on engineering projects."

Bonita Blanch  
Civil Engineering Technician



## Electrical Engineer

An electrical engineer designs, develops, tests, and supervises the manufacture of electrical equipment. You might be working with lighting and wiring, radar, integrated circuits, or microwave communication.

"My job involves analyzing many types of integrated circuits for AC and DC parameters and to determine what will enhance their performance. I communicate with Design engineers and engineers who manufactured the circuits to resolve design or process-related problems that caused the circuits to perform poorly."

Cheryll P. Rutter  
Electrical Engineer

## Nuclear Engineer

Nuclear engineering is a specialty that usually requires a Master's degree.

"As a nuclear engineer employed by a utility, my function relates to the designing of fuel in the reactor and to monitoring reactor power and fuel behavior. The job is challenging; there is always something new, so the job is not boring."

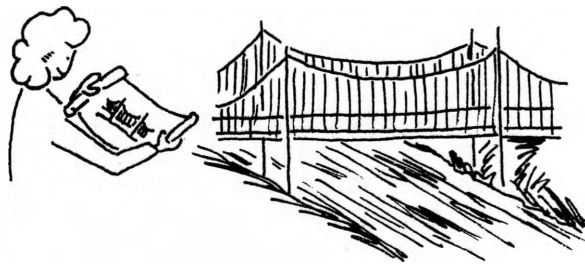
Denise S. Reed  
Nuclear Engineer

How should I prepare?

A two-year technical degree in Engineering Technology would allow you to do production work or practical design. A woman with a Bachelor's or Master's degree in one of the fields of engineering will enjoy high demand. A Ph.D. would not give you an advantage unless you want to do high level "pure" research.

"Math courses and advanced science courses are a must. Even English literature and composition courses are very important, because an engineer must be able to communicate."

Denise S. Reed  
Nuclear Engineer



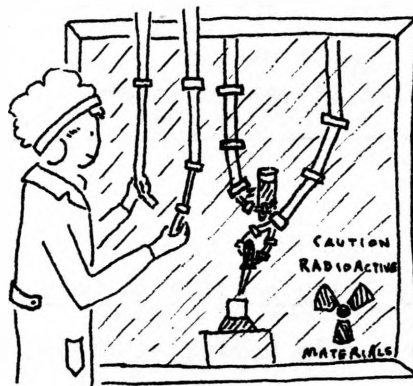
"Study hard to get a good technical base. Do your homework between classes in the building of your major rather than in the library; you'll meet more people in your field. If you are math and science oriented, you won't have any problem with an engineering program. Don't let anyone talk you out of your decision."

Beverly A.B. Hussey  
Civil Engineer

Preparation - continued

"I had an extremely good mathematics background. Counselors in high school encouraged me to become a math teacher. I'm glad I waited four years before going to college because I believe I'm getting more satisfaction being an engineer than a teacher."

Sandra J. Chretien  
Chemical Engineer



Are there opportunities for women in engineering?

"At present, the opportunities are seemingly unlimited - with any degree level - and there are opportunities to become involved in research, production, management, almost anything."

Kim Paul  
Chemical Engineer

Opportunities - continued

"For a woman with a Bachelor's or Master's degree, the demand is high because of a shortage of qualified people."

Denise S. Reed  
Nuclear Engineer

"In Maine - opportunities exist but career advancement is limited. In the U.S. - the sky's the limit."

Cheryl Wixson  
Utilities Engineer

Are there any drawbacks to being a woman in this field?

Engineering has been a male dominated field, but competent women have little difficulty.

It's no different than any other field. A woman must continue to demonstrate her competency."

Cheryl Wixson  
Utilities Engineer

"Behaving like there are no difficulties and assuming that whoever you're working with is also your equal goes a long way to smooth over any drawbacks there may be."

Cheryll P. Rutter  
Electrical Engineer

## Health Sciences

The number of people who work to keep us healthy or help us when we're sick has increased tremendously in recent years. Whether they work in laboratories as technicians, in hospitals as physicians or nurses, in clinics and offices as dentists, or in universities as researchers, these people have a common goal: to serve the sick, the injured, the aged, the troubled, and to preserve the health of the well. We'll try to give you an idea of some of the careers available in the health sciences and the nature of these careers by looking at dentists, physicians, and technologists.



## Dentist

### What does a dentist do?

For the woman who anticipates having a family, likes helping people, works well with a structured schedule, and has a high degree of manual dexterity, dentistry may be the perfect profession.

"I diagnose and plan treatment for our orthodontic patients. I am also involved in running the office and hiring and firing employees."

Jeanne L. McDonald  
Orthodontist

"Dentistry can afford me a well-balanced life. I am able to have a personal life, and I can control my own schedule - days and hours - the way I want."

Anita T. Violette  
General Dentist

### How should I prepare?

You will have to go to dental school. Although a Bachelor's degree is preferred for entry into dental schools, it is possible to enter dental school after two years of college. If you did not want to invest the amount of time required to become a dentist, you could train for a career in a supporting role - such as dental assistant, dental hygienist, lab technician, or therapist. But if you want to be a dentist, that's what you should pursue.

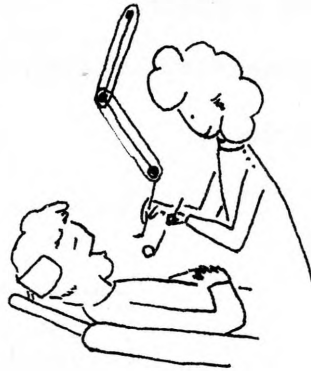
"If you think you want to be a dentist, don't be talked into settling for a job as a hygienist just because this is a female-role job."

Jeanne L. McDonald  
Orthodontist

Are there opportunities for women in dentistry?

"The future of women coming into dentistry looks better now than it did ten years ago."

Anita T. Violette  
General Dentist



"Opportunities are excellent. Because women are a minority group, they try to accept a certain number into dental school. But there will always be a number of patients who prefer a man dentist."

Jeanne L. McDonald  
Orthodontist

## Medical Technologist

### What does a medical technologist do?

Advances in medical science and technology have created a need for professionals who work in laboratories, operate equipment, and keep records. Women who want medically oriented jobs that they can leave at the office might be interested in careers in the support field of medical technology. Depending on the type of job or hospital, there may not be much direct patient contact.

Subspecialties include chemistry, radiology (x-ray) and ultrasound, histology, and microbiology.

"In microbiology I plant cultures, grow them up, identify the bacteria."

Nancy Lloyd  
Medical Technologist

"One can go into fields of radiation therapy (treatment of cancer patients), nuclear medicine doing work with isotopes...."

Debra Atwood  
X-Ray Technologist



"Many think the only thing we do is 'stick needles in people and take their blood from them' when actually there are a number of ways we help them by just a small blood sample."

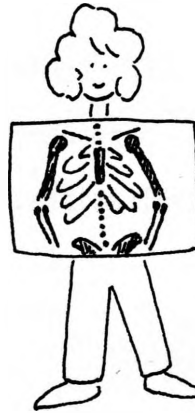
Edith Sullivan  
Medical Technologist

How should I prepare?

Some of the technologists go to technical training schools; some have Bachelor's degrees. With a Master's degree you could work in supervisory, administrative, or teaching positions.

"The job requires mental alertness, manual dexterity, integrity, and a sense of responsibility. We have to strive for perfection; someone's life might hang in the balance."

Shirley A. McGovern  
Medical Technologist



Are there opportunities for women in medical technology?

"It is a female-dominated field. Women are running the education programs, the departments, and even the hospitals. The potential for advancement is there for those who go after it."

Margaret A. Zwicker  
Radiologic Technologist

## Physician

### What does a physician do?

The typical working day varies greatly, from just a few hours to all 24 hours. In addition, one is on call some nights, weekends, and holidays.

Time is spent seeing patients in the office and in the hospital, in surgery, or post-operative care, dictating medical records, conferences, consultations, deliveries.



"Medicine is a very rewarding, but very demanding field: the work is rarely humdrum, involves a great deal of people contact, can be quite hectic when emergencies arise. It is constantly changing."

Susan Williams  
Pediatrician

### How should I prepare?

Most medical schools expect applicants to have a broad general education and a Bachelor's degree. Although many applicants are science majors, there is no such thing as a "premedical program." Competition for entry is keen. Medical schools, therefore, consider not only college grade averages but also character, personality, leadership qualities, and extra-curricular activities. After medical school, you may have to do an internship and a residency, which provide additional practical experience and specialty training. Physicians describe themselves as motivated, determined, inquisitive, and able to deal with stress.

Are there opportunities for women in medicine?

Although the supply of physicians is increasing, so is the demand, particularly in the primary care areas such as family practice, pediatrics, or internal medicine. Rural areas especially are underserved by physicians. Some communities offer guaranteed minimum incomes. Relatively high salaries, prestige, and demand all contribute to the attractiveness of this career. There are many fields of specialization you can choose from, including family practice, surgery, obstetrics, dermatology, and psychiatry.

"In many ways, our culture allows women to be more attuned to emotional needs and this can be an advantage in my field."

Joan Larkin  
Psychiatrist

"Doctors can do practically anything; go anywhere, regardless of sex (though surgery presents somewhat more resistance)."

Dina Jeannette  
Family Practice Resident



Are there any drawbacks to being a woman in this field?

Most of the physicians report no major drawbacks to being a woman in this field, but would like to have more time to spend with their families.

"It's hard to have a family and this career without feeling you're short-changing one or the other."

Diane Korsower  
Family Practitioner

### Biological and Life Sciences

The life scientist can be found bent over a microscope, extracting a mouse's ovaries, walking through forests or over sand dunes, penetrating the ocean's depths, checking the cows in a dairy barn - anywhere, in fact, that living organisms, whether simple or complex, are being studied. Animal scientists, biologists, environmentalists, foresters, geneticists, and nutritionists appear in this section and provide a small sampling of careers in the biological and life sciences.

Check also the Appendix of this book for references to publications and associations that can give you more information.

## Animal Scientist

### What does an animal scientist do?

Animal science is a career in which you can spend time managing animals on a farm, assisting a veterinarian, or working in a lab. With an advanced degree, you can conduct research on the housing, breeding, and feeding of animals. Women who like working outdoors may find farm-related animal science work an exciting career choice. Some animal science graduates go on to become veterinarians.

"I work with people furnishing them with information and advice on dairy, agronomy, swine, beef, horse, fruit, vegetable, nursery, greenhouse, gardening...."

Donna Coffin Lamb  
County Extension Agent



"As a dairy plant field representative, I am responsible for the quality of the raw milk on approximately 100 dairy farms in Maine. This involves doing bacteriological work on milk samples and then inspecting farms with poor quality milk to find the causes of the poor test results."

Michaele Minigell  
Field Service Representative



How should I prepare?

The Associate degrees, Animal Agriculture Technologist and Animal Medical Technologist, would prepare you for numerous entry level jobs on farms, in industry, or in veterinary clinics.

A Bachelor's or Master's degree in animal science will prepare you for many job choices in the animal industry. With a Ph.D. you could work in colleges or universities teaching and doing research, in industry, or in government positions in the areas of development or regulation.

"Get summer jobs related to field of interest to see if it is what you expect."

Michael Minigell  
Field Service  
Representative



"If you are going into the agricultural field, you must get experience. Working summers or weekends for little or nothing will be a great educational opportunity."

Donna Coffin Lamb  
County Extension Agent

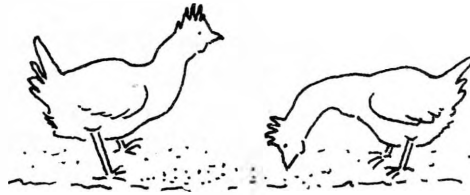
Are there opportunities for women in animal science?

"Opportunities are good for agricultural agents throughout the U.S."

Donna Coffin Lamb  
County Extension Agent

"The opportunity for women in my particular field is tremendous at all levels of education."

Linda Kling  
Poultry Nutritionist



Are there drawbacks to being a woman in this field?

"In my field, I am a minority. When I go to professional meetings, it is not atypical for me to be the only woman there. This really isn't a drawback if you are the type that enjoys being noticed in a crowd. On a day to day basis, I don't have any difficulties being a woman in my field."

Linda Kling  
Poultry Nutritionist

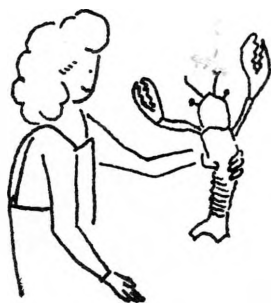
"The administration was quite hesitant about a woman agricultural agent because they felt she would not be accepted by the community. They couldn't have been further from the truth. I feel that I have been accepted by the farmers better than most male agricultural agents."

Donna Coffin Lamb  
County Extension Agent

## Biologist

### What does a biologist do?

The field of biology includes many subspecialties that deal with various aspects of living organisms - plants and animals. Some work may be in the field, some in the laboratory, and some in the classroom. The type of work would depend on the subspecialty.



"I conduct nutritional experiments on the lobster and investigate the microscopic structures of the stomach. A typical day might consist of weighing out samples, meeting with a student, driving to the coast and back, analyzing data, and then sitting in front of a tablet of paper trying to write."

Margie Lee Gallagher  
Marine Nutritionist

"My research is concerned with the biology of aquatic insects. It has involved a lot of work with the effects of pollutants on these organisms. This research is strongly field oriented and, especially during the summer, I spend a lot of time out of doors working on lakes, rivers, and streams."

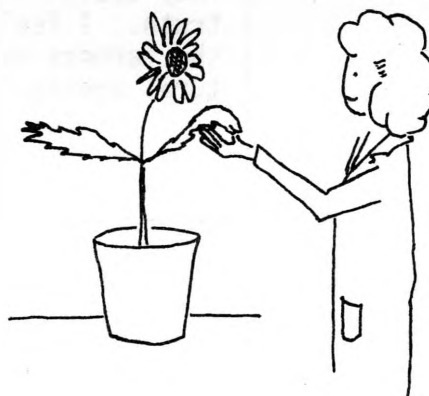
K. Elizabeth Gibbs  
Aquatic Entomologist

"I teach, participate in committee meetings, work with students, carry out administrative chores, and, if possible, work on research concerned with plant morphology."

Barbara F. Palser  
Botanist

"I very seldom work a 'regular' 5-day week, but rather an 'irregular' 7-day week. The job is demanding but includes a great deal of freedom and very little tedium."

Mary S. Tyler  
Developmental Biologist

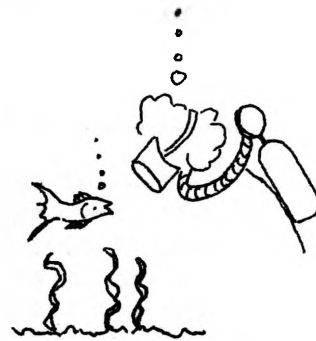


### How should I prepare?

With a Bachelor's degree, you could work as an assistant in the laboratory or the field. You should take as much math as you can, plus written and oral communication. Computer skills are also important. With a Master's degree, you could work in positions with state or federal agencies, in business, or teaching in a two-year college. A Doctorate is necessary for university research and teaching positions.

"As an aquatic biologist such skills as photography, being able to drive a motor-boat, being a good swimmer and a scuba diver will be helpful."

K. Elizabeth Gibbs  
Aquatic Entomologist



### Are there opportunities for women in biology?

There are not that many positions in the field for men or women. But really good people are usually placed without too much difficulty. The competition for academic positions is severe. Most women report no drawbacks to being a woman in this field.

## Biomedical Scientist

### What does a biomedical scientist do?

"I have a unique opportunity to be creative, to make contributions towards understanding how the brain works, and to make advances in treating human illnesses."

Edith D. Hendley  
Physiologist

"I primarily teach introductory level courses (chemistry, anatomy, and physiology) to allied-health students."

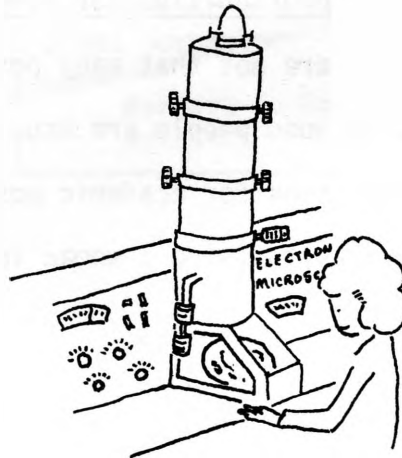
Kay Storch  
Physiologist

"A typical day is from 8 a.m. to 7 p.m. with a 5-minute lunch break. The work doesn't stop when one leaves the lab, but continues into the evening at home when one catches up on current literature and writes research papers."

Jane E. Barker  
Hematologist

"I study the effects of experimental procedures on the structure and function of the thyroid gland. I may give rats special diets, then prepare their thyroid tissue for analysis with a light or electron microscope."

Patricia Powers Krupp  
Anatomist



How should I prepare?

With a Bachelor's or Master's degree you could work as a lab technician, a science writer, or teacher in health related fields, or a salesperson for pharmaceutical companies. With a Doctorate you could conduct independent research in government, industry, or academia, or teach professional degree students.

"You should be willing to spend more than 40 hours a week at your work, to be able to carry on in spite of frustrations in your research, and to forego the chance of becoming rich at your profession."

Edith D. Hendley  
Physiologist

Are there opportunities for women in biomedical sciences?

"I think it will be difficult for both men and women to teach and do research in a university setting in the near future. There might be more opportunities in commercial areas in the future."

Patricia Powers Krupp  
Anatomist

"There should be many interesting jobs in health related sciences for the student who is interested, persuasive, persevering, and anxious to have their intelligence utilized."

Jane E. Barker  
Hematologist

## Environmentalist

### What does an environmentalist do?

An environmentalist is involved in monitoring, protecting, and investigating the quality of the natural environment in the areas of coastal wetlands, mining, and rehabilitation of land, solid waste, and air and water quality. For example, you might work for the Department of Environmental Protection.



"...slogging through salt marshes, scrambling over heaps of garbage on a dump inspection, occasional boat rides investigating Great Ponds, complaints. Every hour in the field generates an hour or two of paper work."

Sarah Vetault  
Environmentalist

"I coordinate a statewide water quality monitoring program for volunteers. This position involves meeting many people on an individual basis and instructing them in lake ecology."

Barbara Welsh  
Environmentalist  
Aquatic Biology

"I enjoy working with projects dealing with coastal wetlands as it allows me to feel as though I am doing something constructive to help preserve these areas from exploitation and destruction."

Rita Worthing  
Environmental Services Specialist

How should I prepare?

Take the college preparatory program in high school. A Bachelor's degree can lead you to many exciting and interesting jobs. Most of the women have their degrees in Wildlife Management, Environmental Studies, Biology, or National Resource Studies.

"Try to look ahead and anticipate your academic needs so that your college time will be spent wisely. Many courses that seemed unimportant or boring while in college, turned out to be invaluable later on."

Paula Cambridge  
Environmental  
Division of Enforcement

Are there opportunities for women in environmental science?

The Maine Department of Environmental Protection employs men and women for field and administrative work. Although biology graduates in general are flooding the market, affirmative action has made it easier for women to get jobs. Most women report no major drawbacks to being a woman in their field.

"The only difficulty I have had is that I am the first and only woman to have this position. I have had to establish myself and prove my capabilities with the older staff members. Fortunately, I work directly with young men who have caused me no problems at all."

Rita Worthing  
Environmental Services Specialist



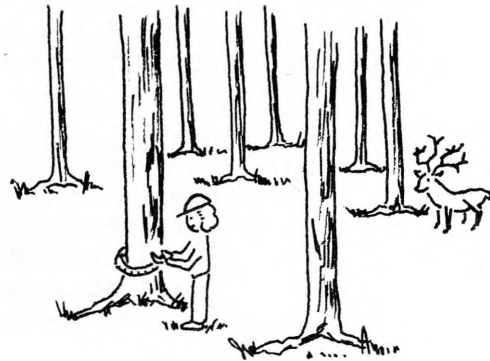
## Forester

### What does a forester do?

Either forestry or wildlife management offers an opportunity for rewarding outdoor work preserving, managing, and conducting research on forest lands and wildlife and their habitats. Foresters may work for the U.S. Forest Service, the National Park Service, the U.S. Fish and Wildlife Service, or for private industry.

"Perhaps what I enjoy most about my job is the variety; one day I am putting on my boots and hard hat preparing to snowshoe to an area, and the next I am at a meeting dressed in a skirt."

Donna Cassese-Haynes  
Forester



"There is no typical day! I plan and implement small studies...tree planting, use of herbicides, thinning, density control, site quality."

Andrea Nelson Colgan  
Forester

### How should I prepare?

There are many forestry jobs that can be done by technicians who have a two-year Associate degree. It is possible to compete successfully with a Bachelor's degree - as a project forester, field forester, manager of a wildlife refuge, or supervisor; with a Master's degree and a Doctorate, you can work in research and administration.

Are there opportunities for women in forestry?

"Forestry is an overcrowded field as a result of the 'environmental movement.' Women are being hired, though. Most of my female forester friends have jobs."

"Be aware that you are developing a specific skill. Locations are very restrictive. It would be difficult to find a forestry job in Boston or New York City."

Andrea Nelson Colgan  
Forester

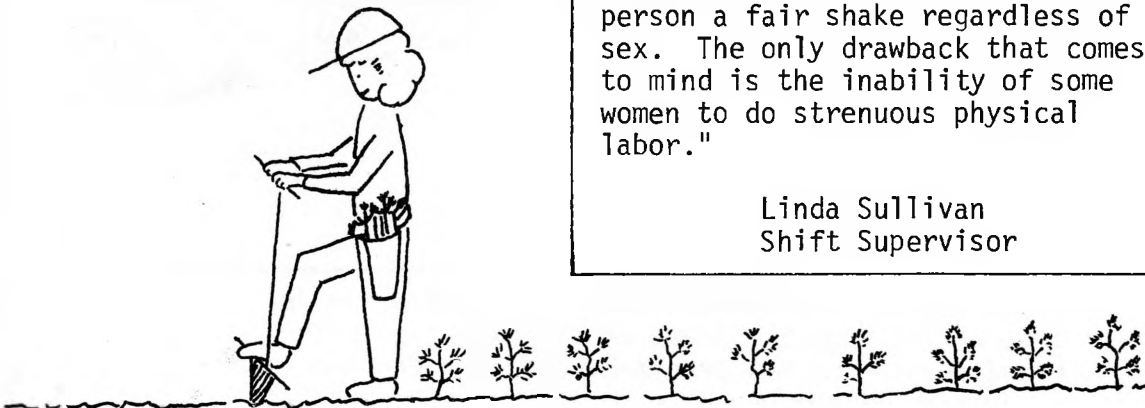
Are there drawbacks to being a woman in this field?

"None, really. Women are still an oddity in the forestry field and the disadvantages are balanced by the advantages. A woman who is willing to do her fair share will be accepted."

Donna Cassese-Haynes  
Forester

"Most people are willing to give a person a fair shake regardless of sex. The only drawback that comes to mind is the inability of some women to do strenuous physical labor."

Linda Sullivan  
Shift Supervisor



## Geneticist

### What does a geneticist do?

"I work on constitutional diseases similar to human conditions and try to understand how genes act to produce them. I do more directing than actual hands-on participation. Much time is spent writing scientific papers."

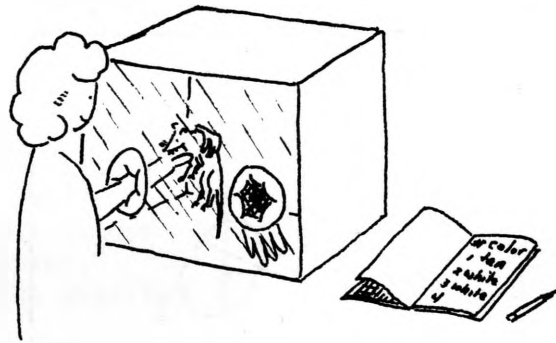
Elizabeth S. Russell  
Geneticist

"Most of the traits I study are developmental malformations - for example, cleft lip - and what I learn about the reasons that mice develop defects is used as a model of the same problem in human beings. I plan experiments, treat mice with drugs, examine embryos, analyze the data, and write papers."

Diana M. Juriloff  
Geneticist

"No day is typical!"

Sally C. Fox  
Genetics  
Assistant



"As Executive Director, I am responsible for interacting with the Board of Directors, planning and developing new programs, securing funding, and supervising personnel and projects. Our projects involve specific genetic diagnostic tests for families with high risks, and counseling these families regarding risk and options available for dealing with these risks."

Clareann M. Bunker  
Executive Director  
Genetic Services

How should I prepare?

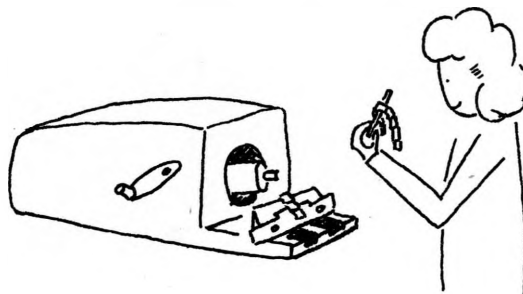
You should get a good science background in high school. Good laboratory skills in chemistry, physics, and mathematics make the college courses easier. With a Bachelor's or Master's degree you could work as an assistant in diagnostic or research labs. You would have to have a Doctorate for original lab and clinical research.

"Women with Bachelor's and/or Master's are usually assistants. Women with Doctorates are limited only by their own potential."

Helen P. Bunker  
Immunogenetics  
Assistant

"The more education the better, but most of the actual work in my field can be done without all those years of formal training. Experience is the key word. You can read about things, but knowing and understanding require doing."

Jane L. Harris  
Behavior Genetics Assistant



"A person working as an assistant would probably spend more time in the animal rooms and laboratory and less on paper work."

Muriel T. Davisson  
Geneticist

Are there opportunities for women in genetics?

In Maine opportunities are limited, but opportunities in the U.S. are good. Although competition for jobs is keen, a competent woman should not have difficulty if she is free to accept a job in another state.

"In general women are well accepted in biology and genetics. There have been many important contributions to mouse genetics (my field) by women."

"Men do seem to have a network of social ties where professional gains may be made and which is closed to their women colleagues."

Diana M. Juriloff  
Geneticist

## Microbiologist

What does a microbiologist do:

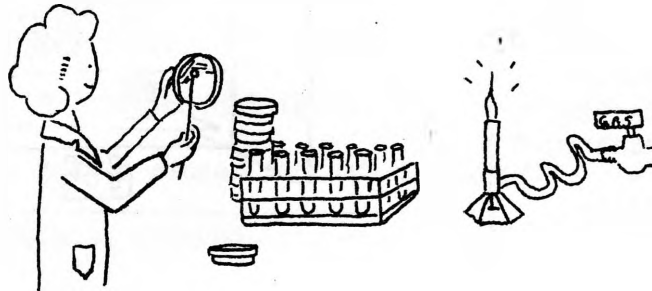
A microbiologist works with bacteria or viruses.

"I am investigating the immune response of mice to their tumors and how this can be modified by immunization or interferon."

Donna Marie Murasko  
Immunologist

"My research involves propagating viruses in cell culture, then purifying the virus and determining biochemical characteristics. I don't work a regular 5-day week since some experiments require longer hours and/or periods of days."

Ulrike Stadler  
Tumor Virologist



"I am studying the DNA viruses which have the ability to transform normal cells into cancer cells."

Maryann Jerkofsky  
Virologist

"I study the microbiology of placentas in relation to the outcome of pregnancy, i.e. condition of the baby, cultures relating to infection and infertility. Our laboratory specializes in unusual microorganisms."

Ruth B. Kundsinn  
Microbiologist, Epidemiologist

How should I prepare?

With a Bachelor's or Master's degree, you would work primarily as a technician. A Doctorate would prepare you for original research or administration in hospitals, universities, industry, or government.

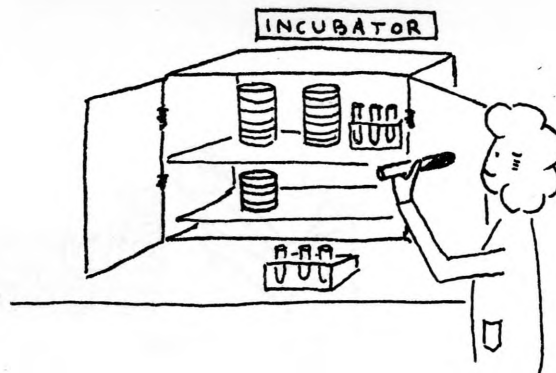
"I went to an all girls' high school and an all women's college. I feel that both of these are an advantage as one gets used to seeing achieving women and women in positions of power."

Ruth B. Kundsин  
Microbiologist,  
Epidemiologist

Are there opportunities for women in microbiology?

"Opportunities are not all that plentiful in Maine. Without a doubt, there are many more opportunities elsewhere in the U.S. in health, industry, and research."

Cynthia L. Grindle  
Microbiologist



Are there drawbacks for women in this field?

"Recognition is hard to acquire. A woman's work is evaluated differently than a man's, and salaries, promotions, and recognition must be actively sought. Personal enjoyment in my work is tremendous and compensates for all the difficulties."

Ruth B. Kundsин  
Microbiologist,  
Epidemiologist

## Physical Sciences

Investigating the earth and the universe - what they're composed of, how they work - is the job of physical scientists. Some express their feelings in mathematical terms, some in chemical formulas; in this section we take a closer look at the careers of astronomers, chemists, geologists, mathematicians, and physicists.



## Astronomer

### What does an astronomer do?

Actually, astronomers today spend little time observing stars through telescopes. Their observations and analyses are made with radiotelescopes, computers, and photographic images.

"I do research using spectra of stars and galaxies. A typical day is spent in my office analyzing data, but I also spend some time observing with a large telescope (either in Chile; Tucson, Arizona; or British Columbia, Canada)."

Ann Cowley  
Astronomer



### How should I prepare?

A Ph.D. is almost a necessity. As an astronomer with a Ph.D., you would work at a university or an observatory. With a Bachelor's or Master's degree, it might be possible to work as an observatory assistant. A good background in math in high school is important for preparing you for the science classes in college.

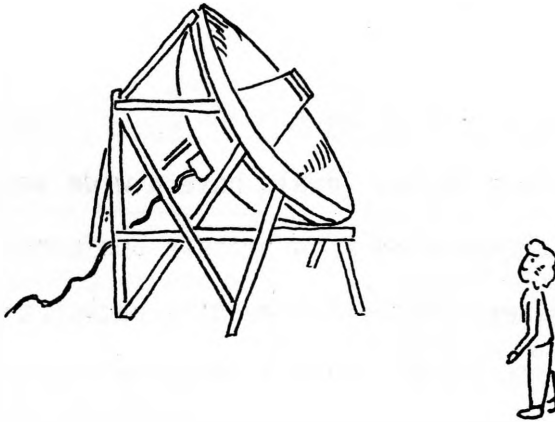
Are there opportunities for women in astronomy?

In Maine, there are not many opportunities. Even in the United States, the job situation for both men and women is very tight because there are few jobs available. And competition for the jobs is keen.

Are there drawbacks to being a woman in this field?

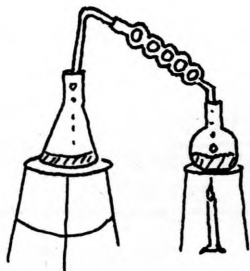
"A very small percentage of astronomers are women. It would be better if there were more. Some people don't understand or recognize discrimination. Women have to be very good to succeed, but things are getting better."

Ann Cowley  
Astronomer



## Chemist

### What does a chemist do?



"My present work involves examining the characteristics and chemical components of wood pyrolysis oil. I also teach a course in organic chemistry."

Marqueta K. Hill  
Biochemist

"My research interests are in the area of chemical carcinogens, studying the way hazardous environmental chemicals are metabolized in the body to cancer causing agents."

Anne Barrett Swanson  
Biochemist

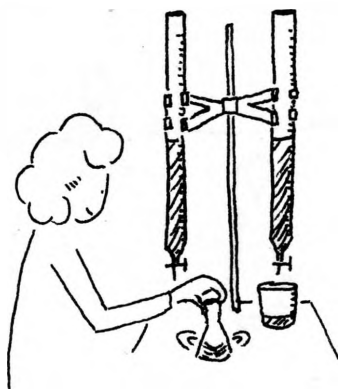
### How should I prepare?

Chemists at all college degree levels have a wide variety of career opportunities to choose from - in private business, government, or colleges and universities. A chemistry background is also helpful in many other professions. With a Bachelor's degree and a Master's degree you may become a technician or work as a bench chemist. You might also work in research and development. For original research you would need a Doctorate.

Are there opportunities for women in chemistry?

"The amount of chemical industry in the state of Maine is limited though there are opportunities with city and state governments, as well as small analytical and support facilities. In the United States there are extensive opportunities for chemists."

Nina M. Roscher  
Chemist



Are there drawbacks to being a woman in this field?

"You have to be better to get as far as a man with equivalent background - and work harder."

June Fraenkel-Conrat  
Biochemist

"Being taken seriously by others - men and women. The best answer to this is to be sure to take yourself seriously."

Marqueta K. Hill  
Biochemist

## Geologist

### What does a geologist do?

Geologists spend a lot of time in the field studying the rocks and minerals that form the earth's crust. From the rocks, and fossils they find in the rocks, they learn about the history of the earth. And by studying rocks and rock formations geologists determine where oil can be found. Some geologists have studied the rocks that came from the moon.



"I work as part of a team that is trying to reconstruct the glacial history of the Antarctic. I have spent two field seasons collecting sediment samples from the Ross Sea area. In the lab, I study the Diatoms in the sediments, in order to determine what environmental conditions existed in Antarctica during past glacial and interglacial periods."

David Kellogg  
Geologist

### How should I prepare?

Geology is a career choice you should plan for before your junior and senior years in college, so you can take all the required geology courses. Take as many different science and math courses as you can. Learn to use a computer. Courses that teach you to speak and write effectively are also important.

"To be a geologist, you should love the out-of-doors, be very independent, and thrive on travel. Mountaineering and camping can be very useful skills. There is no such thing as an armchair geologist."

David Kellogg  
Geologist



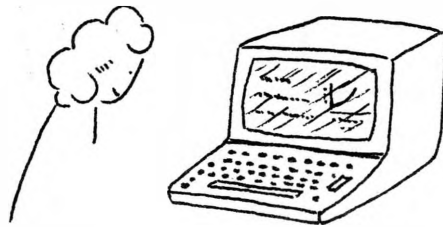
### Are there opportunities for women in geology?

With a Bachelor's degree you could work as a laboratory assistant. If you have a Master's degree, the opportunities are good for jobs with industry, especially oil companies, and with government. If you would like to teach and do research at a university, you have to have a Doctorate, but jobs at that level are very competitive.

## Mathematician

### What does a mathematician do?

About 3/4 of the nation's mathematicians work in colleges or universities. They are theoretical mathematicians and often combine teaching with research - which develops new principles and new relationships between existing principles of mathematics. The field of applied mathematics develops approaches to solve practical problems in business, government, and sciences - and includes statistics and computer science.



### How should I prepare?

You should take a lot of math in high school. A Bachelor's degree in mathematics offers many choices, and advanced degrees increase your options even more. A good knowledge of computer programming is also a necessity.

"Statistics combined with computer and operational research can really open up a whole new job market for women."

Pushpa Gupta  
Statistician

Are there opportunities for women in mathematics?

"Opportunities for women are great in statistics. With a degree or major in statistics, one can work in health institutes, in industry (like IBM, Polaroid, radio and television), or her own consulting business."

Pushpa Gupta  
Statistician

"At the present time, there is a shortage of programmers at all levels. No one with a degree in computer science, of whatever level, should have difficulty finding a job."

Eloise Kleban  
Computer Scientist

"Anyone with a Ph.D. is guaranteed many, many opportunities. People with Bachelor's degrees are getting interesting starting jobs with salaries of \$16-18,000 and up."

Caroline Fenn  
Computer Programmer

Are there drawbacks to being a woman in this field?

"None as far as I can see. I was a woman in mathematics before the days of the women's movement. I was advanced on my merit as a person. Today, there are not enough women candidates in mathematics."

Lucille Zukowski  
Mathematician

"Women have been very active in computing from the start. If there is a preponderance of men in the field, it may partly be because computers are machines - historically a male-dominated area."

Eloise Kleban  
Computer Scientist



## Physicist

### What does a physicist do?

Physicists observe how inanimate objects behave. They then try to describe these in mathematical terms (e.g. the structure of the universe and the interaction of matter and energy). Their research has led to exploration in space, as well as the sea, and to the development of nuclear energy and nuclear medicine. There are many specialties within the field.

"I carry out and analyze the data from experimental high energy particle physics experiments. I also develop detectors to make these experiments possible."

Vera Kistiakowsky  
Physicist

"My work is concentrated on vacuum ultraviolet, spectroscopy of serum conductors and biomaterials such as nuclear acids. My teaching duties are in the area of astronomy."

Cynthia Wyeth Peterson  
Biophysicist

### How should I prepare?

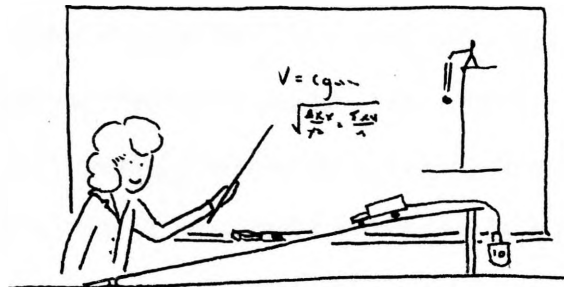
You should take lots of math in high school. A major in either mathematics or physics would prepare you for an advanced degree in physics. With a Bachelor's degree you could become a technician or work in data analysis. A Master's degree prepares you for interesting research jobs. A Ph.D. is required for high level research in private industry, colleges and universities, and government.

Are there opportunities for women in physics?

Opportunities are good because there are few women, especially at lower technician levels.

"It is especially advantageous for a woman because of the great amount of flexibility in hours. This is particularly so if one still has children."

Mary Beth Stearns  
Physicist



Are there drawbacks to being a woman in this field?

"Often women in physics have not had the advantage of tinkering with apparatus - cars, radio sets, etc. - that men had as children. One also hears that it's harder for a woman in physics because she can't lift heavy apparatus; but, of course, there are plenty of men with bad backs."

Cynthia Wyeth Peterson  
Biophysicist

"My field is extremely competitive and it takes care and good fortune to combine a successful career with a substantial non-career commitment."

Vera Kistiakowsky  
Physicist

## T0: Parents, Teachers, and Guidance Counselors

What's ahead for young women in high school today? Nine out of ten can expect, at some point in their lives, to work for pay outside of the home and to spend 23 years of their lives as part of our nation's paid labor force, 41% of which is currently made up of women. The economic and social reality of the future will probably mean that your daughters and female students will work outside of the home for almost as many years as your sons and male students.

But will these 23 years be spent in low-paying jobs? We have seen many advances of women in once traditionally male occupations, yet 70% of all working women are found in only three different occupational areas (clerical, service, and professional/technical). We see girls doing well in science and math in the early grades, but often failing to take courses in math, science, chemistry, and physics in high school. As a result they severely limit their career choices.

We have women astronauts, doctors, biochemists, and engineers, but our female students who may have scientific aptitudes and interests have few role models in everyday life. This booklet is designed to provide such models: women who have found fulfilling careers in science and engineering.

What can we as parents, teachers, and counselors do to encourage young women to broaden their career scope and ambitions? Women employed in science, educators, and young women students themselves have given us the following suggestions:

- \*Don't accept less from girls.
- \*Examine your own assumptions and expectations for girls and women.
- \*Examine instructional materials for sex-role stereotyping.

\*See if your school's vocational and career inventories reflect sex bias.

\*Support and encourage young women who want to pursue non-traditional careers.

\*Look objectively at young women's aptitudes.

\*Expose young women to role models and career opportunities.

This booklet, literature, film strips, and movies that show women on-the-job are good ways to start, but should not substitute for "hands on" experiences. Young women need to visit work sites, see first hand what science and engineering careers are like, and talk to women who are on the job, women who combine careers and family life and are living happy rewarding lives.

Increased awareness and parents' and educators' support, in addition to existing legal protection, can help our young women achieve whatever goals they're best suited for. Encouragement is what young women most need to prepare them for the social and economic realities of the future.

AVERAGE MONTHLY SALARY OFFERS

Bachelor's Degree Candidates  
(Data Combined for Men and Women)

<u>By curriculum for all types of employers</u>	<u>Numbers of offers 1979-80 July</u>	<u>Average \$ Offers 1979-80 July</u>	<u>Average High Offer</u>	<u>Average Low Offer</u>
Humanities and Social Sciences				
Humanities	581	1,074	1,417	758
Engineering				
Chemical	7,029	1,801	1,900	1,700
Civil (inc. construction, sanitary & transp. engrg.)	4,181	1,554	1,750	1,348
Electrical (inc. computer engrg.)	11,120	1,690	1,815	1,550
Mechanical	10,637	1,703	1,835	1,560
Petroleum	762	1,987	2,050	1,906
Engineering Technology	1,826	1,585	1,750	1,400
Sciences				
Agricultural Sciences	551	1,192	1,550	850
Biological Sciences	222	1,159	1,500	800
Chemistry	427	1,459	1,708	1,150
Computer Science	2,569	1,558	1,750	1,350
Health (Medical) Profes- sions	300	1,155	1,400	950
Mathematics	823	1,475	1,750	1,160
Other Physical & Earth Sciences	353	1,543	1,850	1,083

### Publications and Organizations

The lists that follow are designed to help you locate more information about jobs and careers of interest to you. The librarian in a school, college, or public library should be able to help you obtain books or articles listed. The professional association(s) of interest to you will send you information about educational and career opportunities in their fields, if you just send them a brief letter requesting such information.

## Publications and Organizations

### General Publications:

Kundsinn, Ruth R., ed., Women and Success, New York: William Morrow Co. (paper), 1976.

Mattfeld, J.A. and Van Aken, C.G., eds., Women in the Scientific Professions, Cambridge, MA: MIT Press, 1965.

Mitchell, Joyce Slayton, I Can Be Anything: Careers and Colleges for Young Women, New York: College Entrance Examination Board, 1975.

Occupational Outlook Handbook, Washington, DC: U.S. Government Printing Office, 1976.

Pendleton, D., "Women in Science: Reshaping the Stereotypes," Science News, Vol. 107, No. 171, March 15, 1975.

"Publications of the Women's Bureau," Women's Bureau, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210.

"25 Technical Careers You Can Learn in 2 Years or Less," U.S. Office of Education, The Conference Board & Manpower Institute, Department of Health, Education, and Welfare, Washington, DC 20202.

Schacher, Susan, Coordinator, Hypatia's Sisters, Biographies of Women Scientists - Past and Present, Seattle: Feminists Northwest, 1976, (5038 Nicklas Pl., N.E., Seattle, WA 98105).

Yost, Edna, Women of Modern Science, New York: Dodd, Mead, & Co., 1959.

### Behavioral Sciences Publications:

Anthropologist, Chronicle Guidance Publications, Inc., 1975.

Anthropologists, Science Research Associates, 1975, 4 pp.

Archaeologist, Chronicle Guidance Publications, Inc., 1974, 4 pp.

Careers and the Study of Political Science: A Guide for Undergraduates, American Political Science Association, 1527 New Hampshire Avenue, NW, Washington, DC 20036.

Political Scientists, Careers, 1976, 7 pp.

Political Scientists, Science Research Associates, 1976, 4 pp.

Political Workers, Science Research Associates, 1975, 4 pp.

Careers in Psychology, American Psychological Association, 1722 N Street, NW, Washington, DC 20036.

Opportunities in Psychology Careers Today, Vocational Guidance Manuals.

Psychologists, Careers, 1975, 7 pp.

Sociologist, Chronicle Guidance Publications, Inc.

Sociologist, Guidance Centre.

Behavioral Sciences Organizations:

American Anthropological Association  
1703 New Hampshire Avenue, NW  
Washington, DC 20009

American Political Science Association  
1527 New Hampshire Avenue, NW  
Washington, DC 20036

American Psychological Association  
1200 17th Street  
Washington, DC 20036

American Sociological Association  
1722 N Street, NW  
Washington, DC 20036

National Council for the Social Studies  
2030 M Street, NW  
Washington, DC 20036

Engineering Publications:

After High School What? Engineering or Engineering Technology, Engineers' Council for Professional Development, 345 East 47th Street, New York, NY 10017.

Alexander, Guy, Silica and Me, New York: Doubleday, Chemistry in Action Series, 1967.

"Chemical Engineering," from Jets Journal, The American Institute of Chemical Engineers, 345 East 47th Street, New York, NY 10017.

Engineering - A Goal for Women, Engineers' Council for Professional Development, 345 East 47th Street, New York, NY 10017.

"Engineering as a Profession for Women," (The Engineering Manpower Commission of the Engineers Joint Council); "Engineering: Directory of Engineering Guidance Materials and Programs," "Making it in Engineering," and "WOMENGINEER," (Engineers' Council for Professional Development); "A Profile of the Woman Engineer" and "Women



in Engineering," (Society of Women Engineers). All of the organizations noted are located at 345 East 47th Street, New York, NY 10017.

Fitzroy, Nancy, ed., "Career Guidance for Women Entering Engineering," Proceedings of an Engineering Foundation Conference, New England College, Henniker, NH, August 19-24, 1973. Available from the Society of Women Engineers, 345 East 47th Street, New York, NY 10017.

Killefer, David, The Chemical Engineer, Washington, DC: American Chemical Society, Chemistry in Action Series, 1969.

Kittel, C., Introduction to Solid State Physics, New York: John Wiley, 1971.

Stirling, Nora, Wonders of Engineering, New York: Doubleday & Co., 1966.

Sullivan, George, How Do They Build It?, Philadelphia: The Westminster Press, 1972.

"What's it like to be an engineer?," Educational Relations, General Electric Company, Fairfield, CT 06431.

#### Engineering Organizations:

The groups listed below are all located at the following address:

United Engineering Center  
345 East 47th Street  
New York, NY 10017

American Institute of Chemical Engineers

American Society of Civil Engineers

American Society of Heating, Refrigerating and Air-Conditioning Engineers

American Society of Mechanical Engineers

Engineering Manpower Commission

Engineers' Council for Professional Development

The Institute of Electrical and Electronic Engineers, Inc.

Junior Engineering Technical Society (JETS)

The Metallurgical Society of the American Institute of Mining, Metallurgical and Petroleum Engineers

The Society of Mining Engineers of the American Institute of Mining, Metallurgical and Petroleum Engineers

Society of Women Engineers

Professional organizations that can assist persons interested in Engineering:

American Geological Institute  
5205 Leesburg Pike  
Falls Church, VA 22041

American Institute of Aeronautics and Astronautics, Inc.  
1290 Avenue of the Americas  
New York, NY 10019

The American Institute of Architects  
1785 Massachusetts Avenue, N.W.  
Washington, DC 20036

American Nuclear Society  
244 East Ogden Avenue  
Hinsdale, IL 60521

American Society of Engineering Education  
One Dupont Circle  
Washington, DC 20036

American Society for Metals  
Metals Park, OH 44073

American Society of Agricultural Engineers  
2950 Niles Road  
St. Joseph, MI 49085

American Welding Society  
2501 N.W. 7th Street  
Miami, FL 33125

Committee on Marine Research, Education and Facilities  
Building 159-E, Room 476  
Washington Navy Yard  
Washington, DC 20390

National Council of Engineering Examiners  
Box 752  
Clemson, SC 29631

National Society of Professional Engineers  
2029 K Street, N.W.  
Washington, DC 20006

Society of Automotive Engineers  
2 Pennsylvania Plaza  
New York, NY 10001

Society of Manufacturing Engineers  
20501 Ford Road  
Dearborn, MI 48128

Society of Naval Architects & Marine Engineers  
74 Trinity Place  
New York, NY 10006

Society of Petroleum Engineers of the American Institute of Mining,  
Metallurgical and Petroleum Engineers  
6200 North Central Expressway  
Dallas, TX 75206

Society of Photographic Scientists and Engineers  
c/o Mr. William Flack  
Eastman Kodak Company  
343 State Street - Department 942  
Rochester, NY 14650

Society of Plastic Engineers  
65 Prospect Street  
Stamford, CT 06902

U.S. Department of Transportation  
Federal Highway Administration  
Bureau of Public Roads  
Washington, DC 20591

Health, Biological, and Life Sciences Publications:

Campbell, Margaret A., Why Would a Girl Go into Medicine? Medical Education in the United States: A Guide for Women, Old Westbury: The Feminist Press, 1974.

"Careers in Podiatric Medicine for Women," c/o American Podiatry Association, 20 Chevy Chase Circle, Washington, DC.

Wilson, D.C., Lone Woman: The Story of Elizabeth Blackwell, the First Woman Doctor, Boston: Little Brown & Co., 1970.

Health, Biological, and Life Sciences Organizations:

Agricultural Research Service  
U.S. Department of Agriculture  
Federal Center Building  
Hyattsville, MD 20782

American Association of Immunologists  
Women and Minority Immunologists  
Julia Phillips-Quagliata  
School of Medicine  
New York University Medical Center  
New York, NY 10016

American Association of Women Dentists  
211 East Chicago Avenue, Room 1636  
Chicago, IL 60611

The American College of Surgeons  
55 East Erie Street  
Chicago, IL 60611

American Medical Women's Association, Inc.  
1740 Broadway  
New York, NY 10019

American Physiological Society  
Task Force on Women in Physiology  
Elizabeth Tidball  
Department of Physiology  
George Washington University  
2300 I Street, N.W.  
Washington, DC 20037

American Psychiatric Association  
Committee on Women  
Elissa P. Benedek  
Center for Forensic  
P.O. Box 2060  
Ann Arbor, MI 48106

American Society for Cell Biology  
Women in Cell Biology  
Mary E. Clutter  
Osborn Memorial Laboratories  
Department of Biology  
Yale University  
New Haven, CT 06520

American Society for Horticultural Science  
National Center for American Horticulture  
Mount Vernon, Va 22121

American Society for Medical Technology  
Suite 200, 5555 West Loop South  
Bellaire, TX 77401

American Society for Microbiology  
Committee on the Status of Women Microbiologists  
Mary Louise Robbins  
School of Medicine and Health Sciences  
George Washington University  
2300 I Street, NW  
Washington, DC 20037

Biophysical Society  
Committee on Professional Opportunities for Women  
Marie Cassidy  
George Washington University  
2300 I Street, N.W.  
Washington, DC 20037

Center for Women in Medicine  
Medical College of Pennsylvania  
3300 Henry Avenue  
Philadelphia, PA 19129

Environment/Conservation Publications:

"Career Choices: Working Toward a Better Environment," Office of Public Affairs (A-107), U.S. Environmental Protection Agency, Washington, DC 20460.

Clark, Robert, Ellen Swallow: The Women Who Founded Ecology, Chicago: Follett, 1973.

Latham, Jean, Rachel Carson: Who Loved the Sea, Champaign, IL: Garrard, 1973.

"The Oceans and You," Marine Technology Society, 1730 M Street, N.W., Washington, DC 20036.

Environment/Conservation Organizations:

American Meteorological Society  
45 Beacon Street  
Boston, MA 02108

Environmental Protection Agency  
Washington, DC 20460

Forest Service  
U.S. Department of Agriculture  
Washington, DC 20250

Marine Technology Society  
1730 M Street, N.W.  
Washington, DC 20036

National Wildlife Federation  
1412 Sixteenth Street, N.W.  
Washington, DC 20036

Society for Range Management  
2120 S. Birch Street  
Denver, CL 80222

Society of American Foresters  
1010 16th Street, N.W.  
Washington, DC 20036

Soil Conservation Service  
U.S. Department of Agriculture  
Washington, DC 20250

Chemistry Publications:

Albers; Siegel; Katzman; and Agranoff, eds., Basic Neurochemistry, Boston: Little Brown & Co., 1972.

Bronowski, Jacob, Ascent of Man, Boston: Little Brown & Co., 1974.

Sayre, Anne, Rosalind Franklin and DNA, New York: W.W. Norton & Co., 1975.

"Your Tomorrow - A Guide to Careers in the Chemical Industry," Manufacturing Chemists Association, 1825 Connecticut Avenue, N.W., Washington, DC 20009.

Chemistry Organizations:

American Chemical Society  
Women's Committee  
1155 Sixteenth Street, N.W.  
Washington, DC 20036

American Institute of Chemical Engineers  
345 East 47th Street  
New York, NY 10017

American Institute of Chemists  
Professional Opportunities for Women Committee  
Helene N. Guttman  
Department of Biological Sciences  
University of Illinois at Chicago Circle  
Chicago, IL 60680

American Society of Biological Chemists  
Committee on Equal Opportunities for Women  
Loretta Leive  
Building 4, Room 116  
National Institutes of Health  
Bethesda, MD 20014

Mathematics Publications:

Adams, James L., Conceptual Blockbusting: A Guide to Better Ideas, San Francisco: W.H. Freeman, 1974.

Alban, Keith; Smith, J.M.; Steele, S. and Walter, D., The Language of Pattern, New York: Harper-Row, 1974.

"Association for Women in Mathematics Newsletter," Department of Mathematics, Wellesley College, Wellesley, MA 02181.

"Careers in Statistics," Committee of Presidents of Statistical Societies, c/o American Statistical Association, 806 15th Street, N.W., Washington, DC 20805.

Kline, M., Mathematics in the Modern World, Readings from Scientific American, San Francisco: W.H. Freeman, 1968.

"Math and Your Career," Bureau of Labor Statistics, U.S. Department of Labor, 450 Golden Gate Avenue, Box 36017, San Francisco, CA 94102.

- Osen, Lynn M., Women in Mathematics, Cambridge, MA: MIT Press, 1974.
- Polya, G., How to Solve It, Princeton, NJ: Princeton University Press, 1971.
- "Seeking Employment in the Mathematical Sciences," Mathematical Sciences Employment Register, P.O. Box 6248, Providence, RI 02940.
- "So You're Good at Math...Then Consider a Career as an Actuary," Society of Actuaries, 208 South LaSalle Street, Chicago, IL 60604.
- Wickelgren, Wayne A., How to Solve Problems: Elements of a Theory of Problems and Problem Solving, San Francisco: W.H. Freeman, 1974.
- Wiener, Norbert, I Am a Mathematician, Cambridge, MA: MIT Press, 1964.

Mathematics Organizations:

American Mathematical Society  
P.O. Box 6248  
Providence, RI 02940

American Statistical Association  
806 15th Street, N.W.  
Washington, DC 20005

Association for Women in Computing  
407 Hulmoor Drive  
Silver Springs, MD 20901

Association for Women in Mathematics  
Department of Mathematics  
Wellesley College  
Wellesley, MA 02181

Mathematical Association of America  
1225 Connecticut Avenue, N.W.  
Washington, DC 20036

National Council of Teachers of Mathematics  
1906 Association Drive  
Reston, VA 22091

Operations Research Society of America  
428 Preston Street  
Baltimore, MD 21202

Society of Industrial and Applied Mathematics  
33 South 17th Street  
Philadelphia, PA 19103

Women and Mathematics  
Dr. Eileen Poiani  
Department of Mathematics  
St. Peters College  
Jersey City, NJ 07306

Physics Publications:

Riedman, Sarah, Men and Women Behind the Atom, New York: Abelard Schuman, 1958.

Wright, Helen, Sweeper in the Sky: The Life of Maria Mitchell, First Woman Astronomer in America, New York: Macmillan, 1949.

Physics Organizations:

American Astronomical Society  
211 Fitz-Randolph Road  
Princeton, NJ 08540

American Institute of Physics  
335 East 45th Street  
New York, NY 10017

American Physical Society  
Committee on the Status of Women in Physics  
Margaret E. Law  
Lyman Laboratory  
Department of Physics  
Harvard University  
Cambridge, MA 02138

Biophysical Society  
Committee on Professional Opportunities for Women  
Marie Cassidy  
George Washington University  
2300 I Street, N.W.  
Washington, DC 20037



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