Dr. Stanton Reports Fine Microscopic Fibers Cause Cancer in Laboratory Rats

Microscopic fibers of a certain size are capable of causing cancer in laboratory rats, regardless of the chemical composition of the fibers, according to Dr. Earl F. Stanton, National Cancer Institute.

Dr. Stanton, who is with NCI’s Laboratory of Pathology, reported that the cancer-causing activity of asbestos, for example, is due to its fibrous structure.

He presented the results of studies done with the assistance of Constance Wrench and Eliza Miller at a recent conference in Lyon, France, on The Biological Effects of Asbestos.

The series of experiments with laboratory rats was undertaken to test the ability of various fibrous and non-fibrous substances to cause cancer of the pleura, the membrane surrounding the lungs.

Results showed that very fine fibers of asbestos, glass or sapphire caused a high incidence of pleural cancers in the animals, while coarse fibers or powdered material of the same composition only rarely caused cancer.

Fibers Are Small

The cancer-causing fibers were between one-half and five microns in diameter and less than 80 microns long (less than one-hundredth as thick as an eyelash and under one-tenth as long).

Human mesothelioma—cancers of the membranes lining the lungs and abdomen—occur primarily among persons exposed to asbestos dust. After asbestos fibers have been inhaled into the lungs they often lodge there, remaining for long periods of time.

Twenty to forty years may elapse before the development in man of mesothelioma or other lung diseases such as asbestosis and lung cancer. Asbestos is second only to cigarette smoke as a cause of lung cancer.

In a report published earlier this year in The Journal of the National Cancer Institute, Dr. Stanton and Mrs. Wrench described experiments showing how asbestos causes cancer. They used surgical methods to implant asbestos-covered glass mesh pads directly against the pleura of rats.

The pads remained in place until the rats were autopsied; then the pleural membranes were examined for cancer at the site of asbestos exposure.

High rates of mesothelioma incidence, ranging from 88 percent to 75 percent, were found in 450 asbestos-fiber-treated rats, regardless of which of three chemically distinct types of asbestos (crocidolite, chrysotile or amosite) were used.

Treatment with fine particles of silica, the major constituent of all types of asbestos, caused only one mesothelioma among 48 rats. Neither the chemical composition of asbestos nor the presence of impurities could account for its cancer-causing potential.

In one experiment, a sample of asbestos was ground to reduce its fibers to submicroscopic size and very short lengths. This treatment reduced cancer incidence in test (See Dr. STANTON, Page 6)
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NCI Launches Project
At Hospital in Houston

The National Cancer Institute has launched a multi-million dollar research program on the prevention, diagnosis, and treatment of cancers of the large bowel.

The project will include both hospital and laboratory research on cancers of the rectum and large bowel.

The M.D. Anderson Hospital and Tumor Institute in Houston, Tex., will serve as project headquarters.

Employee Volunteers Needed
For Cholesterol Level Study

A free cholesterol test is available to NIH employees under 55 years of age. The test, to check the levels of fat in the blood, will be given on weekdays between 8:30 a.m. and 9:30 a.m. in the Employee Health Service unit, Clinical Center.

Employees with high blood pressure or diabetes are not eligible.

Fasting at least 12 hours before the test—nothing but water or unsweetened black coffee—is essential for an accurate reading.

Employees with elevated cholesterol will be referred to the Type II Coronary Intervention Program, a special study designed to lower heart attack risk in selected patients with high cholesterol levels.

Unified Committee for Advising On Grant Applications to Meet

A 16-member committee entitled Optometry, Pharmacy, Podiatry, and Veterinary Medical Education Review Committee—formerly four separate groups—will assemble for the first time as one group on Monday, Jan. 22, for a 3-day meeting at NIH.

The committee will make recommendations on applications which include educational grants and teacher training grants. The recommendations will be reviewed by the National Advisory Council on Health Professions Education.

The committee is sponsored by the Optometry, Pharmacy, Podiatry and Veterinary Medicine Branch, DPHPE.

Booklet on Care of Feet Issued
In a Spanish Language Edition

Foot First, the Division of Nursing publication on the care of the feet, has been translated into Spanish and issued in an illustrated edition with the title, Primo Los Pies.

The booklet includes rules for maintaining healthy feet, and also discusses complications and infections. Copies at 60 cents each may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. (20402). A single free copy may be obtained from the Division of Nursing, 9000 Rockville Pike, Bethesda, Md. 20014.

Nearly 300 hygienists attending the recent 49th annual meeting of the American Dental Hygienists' Association were open house guests of the Education Development Branch, Division of Dental Health, BHME, at its Dental Health Center in San Francisco. EDB staff presented the Division's activities affecting public, dental, hygiene, and dental assisting education programs. The hygienists traveled to the center by cable-car bus.

Recruitment Film Wins
CINE Gold Eagle Prize
At Annual Ceremonies

William G. Carr (II), president of CINE, presents a Golden Eagle Certificate to Dr. Clifton O. Dummett, associate dean of the University of Southern California's School of Dentistry and project director for the film, "What About Tomorrow?"

"What About Tomorrow?"—a film developed to recruit students into dentistry by dramatizing the search of a black youth for identity and a life goal—was awarded a Golden Eagle Certificate from CINE (Council on International Nontheatrical Events) during its recent Fifteenth Annual Awards Ceremonies.

Film Explained

Produced by the National Dental Association in 1971 under contract with the Division of Dental Health, BHME, "What About Tomorrow?" emphasizes that young people should spend a portion of today preparing for the future and portrays dentistry as a rewarding career.

The certificate is awarded to those films which CINE considers most appropriate for international competition. Last spring "What About Tomorrow?" won a first place Gold Camera Award at the U.S. Industrial Film Festival.

'Fantastic' Door Prize
Offered at Credit Union
Annual Meeting Jan. 25

The NIH Federal Credit Union will hold its annual meeting on Thursday, Jan. 25, at noon in the Jack Masur Auditorium.

The primary order of business will be the election of directors to the Board and members of the Credit Committee.

Prizes Listed

Door prizes which will be awarded include:

* First prize—a four-day 7-night Caribbean cruise for two with stops at Port-au-Prince, Kingston, Montego Bay, and Port Antonio.

* Second prize—a portable color TV.

* Third prize—a tape player.

Only members of the CU are eligible to enter. Winners must be present at the meeting to receive the prizes.

The guest speaker will be J. Deane Gannon, deputy administrator for the National Credit Union Administration and former director of the Bureau of Federal Credit Unions.

In the past 3 years, assets of the CU have grown from $5 million to more than $27 million. Out of nearly 15,000 credit unions in the U.S., NIH's now ranks in the top 30.
R.E. Learmouth Retires; In Fed. Gov't 37 Years


Mr. Learmouth, who joined NIH in 1955 as chief of its Financial Management Branch, was executive officer of the National Cancer Institute from 1955 to 1970 when he transferred to BHME.

He began his Government career during the Depression as a messenger in the Farm Credit Administration, and by the time he left in 1939 to take a post as a Federal Credit Union representative he had become an accounting clerk.

During World War II, Mr. Learmouth was principal accountant and assistant director of finance for war training programs in the Office of Education.

In 1946 Mr. Learmouth became a systems accountant in the War Amets Administration, and later that year joined the Public Health Service as chief of its Management Section.

He also served in the Office of the Surgeon General for 3 years as an organization and methods examiner.

His retirement plans include continued residence in Rockville and affiliation with Universities Associated for Research and Education in Pathology.

Mr. Learmouth’s honors include the Superior Accomplishment, HEW Superior Service, and HEW Distinguished Service Awards.

Few Employees Get Holiday On Presidential Inauguration

Inauguration eve, Friday, Jan. 19, will be a legal work day for Federal employees in the Washington, D.C. metropolitan area.

Inauguration Day, Saturday, Jan. 20, is a legal holiday for pay and leave purposes only for those employees in the District of Columbia and adjacent areas whose schedules include that Saturday as a regularly scheduled work day.

DCRT Brochure Lists New Spring Courses

A brochure describing the spring 1973 courses offered at the Division of Computer Research and Technology is available at all B/1/D personnel offices and the Computer Center Branch Technical Information Office, Ext. 65491.

The curriculum features a series of new courses to teach scientists how to use DCRT’s research computer, the PDP-10. This machine is not used for ordinary data processing applications so only those interested in scientific computing should apply.

Courses Cited

The new courses include Programming for the Scientist on the PDP-10; APL on the PDP-10, and Graphics Programming on the PDP-10.

Courses of more general interest are: Introduction to the IBM Time-Sharing Option (TSO) at NIH, Resource Allocation Strategies in Operating Systems, Image Processing in Bio-medicine, and Pattern Recognition Methods Illustrated with FORTRAN Programs.

The brochure outlines registration procedures, pertinent dates, and deadlines.

Application forms should be sent to the employee’s personnel office. Applications will be accepted until classes are filled; if a class is oversubscribed attempts will be made to start a second section.

Students Named to DN Council

Three student nurses have been appointed to the National Advisory Council on Nurse Training. They are:

Marilyn Jean Varner, a senior at the Wilkes-Barre General Hospital School of Nursing; Esther M. Hamlet, who at the time of her appointment was attending Bry- vard Junior College, and is now a nurse at Florida Hospital, Orlando, and Barbara Ann Christopherson, a recent graduate of the Washington School of Nursing.

Upon his return from an exchange visit to the USSR, Dr. Paul Corp- bone delivered a doll from young Soviet patients. The accompanying card read, "The children of the Pediat- rie Service for the Petrov Institute, Leningrad, send you this little boy together with their best wishes for a merry Christmas and a happy new year." Terry Mersman (scoot left), Pamela Pinney (standing), and Anne Bostrom receive the gift as Dr. Philip Cohon, NCI, and Peggy McDonald, CC, observe.
NIGMS Supports Research on Trauma—'Neglected Disease' of Modern Society

Dr. G. Tom Shires uses modern computerized equipment specially adapted to monitor the vital signs of patients in Parkland's four-bed research unit. Clinical research is carried out on critically-injured patients who are kept alive through the coordination of therapeutic needs and research discoveries.

First in a Series on Trauma Research Centers

Trauma is called the "neglected disease" of modern society. It is the leading cause of death from one to 44 years, and the fourth leading cause of death for all age groups. There are over 100,000 deaths annually, disabling injuries number 11 million, including 400,000 which result in some degree of permanent impairment.

It is estimated that about one out of every eight beds in general hospitals in the United States is occupied by an accident victim.

This exceeds the number of beds required to care for four million babies born each year or for all the heart patients, and it is more than four times greater than that required for cancer patients.

As late as 1966, very little was done in the medical community to single out trauma victims to determine the extent of injury and the best methods of therapy.

The National Institute of General Medical Sciences met in 1966 with physicians, mostly surgeons, to discuss an approach to this problem.

Program Developed

As a result of this meeting, NIGMS developed a program to grant research funds for the study of trauma to reduce mortality and disability of injured patients.

Today, NIGMS supports eight centers—in Albany, N.Y., Boston, Buffalo, Cincinnati, Dallas, Jackson, Miss., New York City, and San Francisco—and 28 individual projects concerned with trauma research.

The project investigators study one particular aspect of the body's response to injury.

Scientists at Columbia-Presbyterian Medical Center, New York City, measure gas exchange, energy production and changes in pro-

Carolyn Emig, a head nurse at Columbia-Presbyterian, operates a circle bed—one of many valuable tools used to study changes in energy metabolism of bullet wound patients.

Dental Educators Survey Published in Directory

The fifth edition of the Directory of Dental Educators has been published by the Office of Educational Resources and Studies of the American Association of Dental Schools.

The publication is based on the 1971-72 Survey of Dental Educators, made by the AADS under contract with the Division of Dental Health, BHME.

Tables Included

The directory provides information on 10,681 dental educators representing 88 U.S. dental schools, four U.S. schools which offer only advanced education programs, and nine Canadian dental schools.

The publication includes a number of tables which differentiate the numbers of dental educators in terms of their academic degree, academic rank, and primary teaching responsibility.

Dental faculty are listed alphabetically, by primary teaching area, and dental school affiliation.

The project investigators study one particular aspect of the body's response to injury.

The Directory of Dental Educators, 1972-73 is available for $5 from the American Association of Dental Schools, 1035 Massachusetts Avenue, N.W., Washington, D.C. 20036.

A limited number of citations can be printed at the terminal. As many as 300 can be printed offline with delivery in 2 to 3 days.

All B/I/D personnel in Westwood Memorial Hospital, Dallas, studies the measurable reductions in plasma volume and in extracellular fluid which are responses to trauma.

These changes in body fluid space are the key to successful restoration of circulating blood volume and to preservation of cellular function following trauma.

They are particularly important after massive crush injuries and burns.

Scientists have devised an intracellular ultra-micro-electrode to study changes in permeability of muscle cell membranes due to trauma. It also aids in the evaluation of cellular metabolism elsewhere in the body.

The center's investigations into changes in blood flow patterns to the kidney after injury are an attempt to explain its particular vulnerability to trauma.

Pulmonary function has been found to be impaired for several weeks after injury despite apparent normal chest X-rays. With the help of radioisotopes, the researchers hope to determine the causes and extent of this decreased ventilatory function.
NCI and Bristol Labs Enter Agreement For Later Marketing of Cancer Drugs

The first formal agreement between the National Cancer Institute and a pharmaceutical firm for the eventual marketing of certain cancer drugs was announced by Dr. C. Gordon Zubrod, Director of NCI's Division of Cancer Treatment.

The firm, Bristol Laboratories, Syracuse, N.Y., a division of Bristol Myers Company, was selected after competitive bidding by several major pharmaceutical firms.

The drugs are BCNU, CCNU, and methyl-CCNU. They were developed and tested in the Division's research programs. The clinical studies were accomplished under an Investigational Exemption for New Drugs submitted to FDA.

Of the three drugs, only BCNU testing in animals and its clinical evaluations in cancer patients have been completed at this time. Such testing establishes the usefulness of potential cancer drugs, the range of their side-effects, and the effective and tolerated dose levels.

Under the agreement, Bristol Laboratories will submit to FDA a New Drug Application that must be approved before any new drug can be marketed. Once the NDA has been approved, Bristol Laboratories will make and market BCNU.

Agreement Limited

According to the agreement, Bristol Laboratories' obligations are limited only to BCNU. NCI will continue to foster research and to collect and evaluate cancer therapy data for CCNU and methyl-CCNU.

If the usefulness of these drugs continues to be shown, Bristol Laboratories will be offered the first opportunity to file New Drug Applications for CCNU and methyl-CCNU, but the drug company has the right to refuse this offer.

If the company does refuse, NCI, through competitive bidding, will locate another firm to manufacture these drugs.

The cancer drugs that are already on the market, although tested in NCI's drug research program, were almost all originated by pharmaceutical companies.

Company Keeps Rights

In those cases, each company that developed a cancer drug gained all rights to it, with no obligations to NCI.

The present three drugs belong to a class of compounds called nitrosoureas. BCNU [1,3-bis (2-chloroethyl)-1-nitrosourea] and CCNU [1-(2-chloroethyl)-3-cyclohexyl-1-nitrosourea] are able to cross a cancer patient's blood-brain barrier to act against malignant cells hidden in the central nervous system.

Of the three drugs, only CCNU has been active against glioma, advanced Hodgkin's disease and reticulum cell sarcoma, cancers of the lymph system; multiple myeloma, cancer of bone marrow cells; melanoma, an uncommon and often fatal type of skin cancer, and to a lesser extent in cancers of the breast, colon, and lung.

In clinical trials in the investigational stage, BCNU has been helpful in the treatment of glioma, a type of brain tumor; advanced Hodgkin's disease and reticulum cell sarcoma, cancers of the lymph system; multiple myeloma, cancer of bone marrow cells; melanoma, an uncommon and often fatal type of skin cancer, and to a lesser extent in cancers of the breast, colon, and lung.

Animal tests have been completed for methyl-CCNU but clinical evaluations have just begun. In experimental tumor systems, methyl-CCNU demonstrated activity in mice against lung tumors, breast tumors, and melanoma.

Dr. Saul A. Schepartz, associate scientific director, Drug Research and Development, NCI, will administer the agreement with Bristol Laboratories.
 Twelve Medical Centers Concentrate on Research Against Breast Cancer

The National Cancer Institute has awarded contracts to 12 research centers as part of a multi-million dollar research effort against breast cancer. The research contracts were awarded by the Experimental Biology Subcommittee of the Breast Cancer Research Section. According to Dr. Pietro Cullino, NCI, chairman of the Subcommittee, research will be aimed toward a better understanding of how normal breast tissue functions, and of the changes that occur as the breast becomes cancerous.

Dr. D. Jane Taylor, head, NCI Endocrine Related Tumor Systems Section, is project officer.

Breast cancer is the most common form of cancer among American women, striking 70,000 women and causing 31,000 deaths a year. Hormone imbalances may play an important role in the development of the disease, and in some patients it has been possible to cause temporary regression of their cancers by altering hormone levels in the body.

Study Growth Conditions

Roswell Park Memorial Institute scientists will determine what conditions are favorable for the growth of normal and cancerous human breast cells in the test tube. Under another contract, other scientists at that institute will investigate breast cancer metastasis, the spread of cancer from the breast to various parts of the body.

At the Medical College of Pennsylvania and the University of Southern California Medical School, researchers will grow cancer cells from different patients. They will study how the cells change as they grow in the test tube. From such observations, they hope to predict how the disease will progress in individual patients.

Similar research at the University of California School of Medicine, San Francisco, will focus on the hormonal requirements of mammary tissue cultures.

Scientists at the University of Chicago's Ben May Laboratory for Cancer Research, Duke University and the University of Texas Medical School, San Antonio, will study how the female hormone estrogen and other hormones bind to mammary cells and affect the cell's activities.

Research at two universities—Pennsylvania State and Case Western Reserve—will focus on prolactin, a hormone secreted by the pituitary gland which is suspected of playing a major role in breast cancer growth.

Scientists at Stanford University have found that blood contains an unknown factor that stimulates breast growth.

Seek Unknown Factor

They will attempt to isolate and identify this substance and determine how it may interact with hormones in its effect on breast cells.

At the University of Illinois, scientists will study changes in the breast during pregnancy that lead to the ability to produce milk, and the reverse changes that occur when milk is no longer needed.

Related research will be undertaken at the Worcester Foundation for Experimental Biology, where studies will aim at an understanding of how various hormones affect membranes within normal and cancerous mouse mammary cells.

All Units Asked to Aid 'Operation Clean Up'

“Operation Clean Up”—the annual campaign to utilize idle equipment and supplies at NIH—is now taking place with property representatives visiting off-the-reservation buildings this week and on-campus buildings next week. Last year over 500 pieces of equipment, valued at $120,709, were obtained for reissuance.

Concurrent with the "housecleaning," the Scientific Rental Program, which has numerous unfilled requests for equipment, is asking that seldom used equipment be transferred to its loan pool for redistribution.

For information about "Operation Clean Up," call Charles Kerr, Ext. 64247.

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NIH Visiting Scientists Program Participants

12/21--Dr. Gatram R. K. Rao, India, Laboratory of Biochemistry and Metabolism. Sponsor: Dr. Maxine Singer, NIAMDD, Bldg. 10, Rm. 2N114.

12/22--Dr. Cheng-yien, Taiwan, Laboratory of Biology of Viruses. Sponsor: Dr. Norman P. Salzman, NIAID, Bldg. 5, Rm. 824.

12/24--Dr. Daniel E. Schweid, U.S., Bone Histology Branch. Sponsor: Dr. W. King Engel, NINDS, Bldg. 10, Rm. 10D16.

1/2--Dr. Albert J. McQueen, United States, Laboratory of Socio-environmental Studies. Sponsor: Dr. Melvin L. Kohn, NICM, Bldg. 10, Rm. 3D64.

1/2--Dr. Jan DoStoppelaar, The Netherlands, Laboratory of Biological Structure. Sponsor: Dr. Howard A. Bladen, Jr., NIDR, Bldg. 50, Rm. 1216.

1/2--Dr. Naomi Mutsuga, Japan, Surgical Neurology Branch. Sponsor: Dr. John M. Van Buren, NINDS, Bldg. 10, Rm. 4N38.

1/2--Dr. Jacqueline Pflowane, United Kingdom, Section on Intermediate Metabolism. Sponsor: Dr. Gordon Guroff, NICHD, Bldg. 10, Rm. 5B09.

1/2--Dr. Tsutomu Takeuchi, Japan, Physiology and Biochemistry Section. Sponsor: Dr. Eugene Weinbach, NIAID, Bldg. 5, Rm. 134.

1/2--Dr. Yvonne L. Wewerka, Switzerland, Hematology and Supportive Care Branch. Sponsor: Dr. Arthur S. Levine, NCI, Bldg. 10, Rm. 6B64.

1/2--Dr. Sylvain Pitrelo, Belgium, Medical Devices Applications Branch. Sponsor: Dr. Clarence Dennis, NHLI, Westwood Bldg., Rm. 6A18.

1/3--Dr. Gerd Assmann, Germany, Medical Devices Branch. Sponsor: Dr. Donald Frederickson, NHLI, Bldg. 10, Rm. 7N214.

DR. STANTON

(Continued from Page 5)

rants to less than half the rate in rats exposed to natural fibers of asbestos.

The glass-mesh pads alone did not cause cancer, but mesotheliomas occurred in rats exposed to glass that had been treated to reduce it to small fibers, making it comparable to asbestos in size.

Dr. Stanton also described more recent studies designed to test whether particle size and shape are the critical factors in causing this type of cancer.

In these experiments, rats were exposed by the same technique as before to particles of asbestos, glass or aluminum oxide of many different sizes and shapes.

After 2 years, fibers of all three materials have been found capable of causing high rates of pleural cancer in rats.

Two standard samples of asbestos, two of very fine fibrous glass, and a sample of fine sapphire (aluminum oxide) "whiskers" caused cancer in more than half of the 150 rats that have so far been autopsied.

Lower rates of cancer, between 5 and 40 percent, occurred in rats treated with either long, thick fibers or short, thin fibers of glass or asbestos.

None of 150 rats exposed to two samples of fully pulverized asbestos, non-fibrous aluminum oxide, or two samples of glass with large fibers have so far developed any cancer.

"We know that asbestos fibers cause cancer in man," said Dr. Stanton. "We have no evidence on whether other kinds of fibers will also cause cancer in man."

"It's rare to find other substances with fibers the same size as asbestos, and few people are known to have been exposed to them.

"But the results in animals suggest that it would be judicious to avoid inhalation or ingestion of any finely particulate fibrous material," he further explained.
The WHO team selected several villages in Ghana for preliminary visits to determine which would be suitable for study. If the village was picked and its chief agreed, then the cooperation of district officials was also obtained.

**Roscoe L. Bloss Assigned To Study Biotechnology At DRR for 9 Months**

Roscoe L. Bloss, chief of the Engineering Mechanics Section of the National Bureau of Standards, has been assigned to the Biotechnology Resources Branch of the Division of Research Resources for 9 months as a Science and Technology Fellow.

The WHO team selected several villages in Ghana to study biotechnology. The National Bureau of Standards has been assigned to the Biotechnology Resources Branch of the Division of Research Resources for 9 months as a Science and Technology Fellow.

**Participants were examined for signs of onchocercal infection. To determine their visual acuity, the research team administered the "illiterate E" test—identifying E's in decreasing size rotated in different directions.**

Blindness in the United States is often considered a threat to a way of life, but in certain regions of Africa, blindness is an accepted way of life. "It's as natural to these people as childbirth; going blind is to be expected," explains Dr. James P. Ganley, an ophthalmologist and epidemiologist in the National Eye Institute.

The disease, onchocerciasis, is transmitted by bites from infected flies. Victims of the disease host a nematode worm that causes the development of skin nodules and eventual blindness.

Although onchocercal infection occurs early in life, visual impairment usually progresses slowly. However, over 50 percent of the population becomes bilaterally blind from this disease by the age of 50.

WHO's Seven Nation Volta River Onchocerciasis Treatment Project is a large-scale, long-term program to control the disease in the region of West Africa drained by the Volta River and its tributaries.

Because the fly larva which transmits onchocerciasis requires oxygenated water for its life cycle, blindness rates are highest near the rivers.

People in these areas also die more quickly and "eventually whole villages die out, and large tracts of very fertile land are left uninhabited," Dr. Ganley said.

The people are so attached to the land that they won't move away even when they know about the possibility of disease and the eventual blindness.

Dr. Ganley and other members of the WHO team spent one month this past fall in the Upper Region of Ghana, gathering base-line data on the prevalence of onchocerciasis and the frequency of blindness associated with the disease.

Six villages, ranging from 55 to 404 people, were selected for study.

Participants were examined for signs of onchocercal infection. To determine their visual acuity, the research team administered the "illiterate E" test—identifying E's in decreasing size rotated in different directions.

Blindness rates varied among the villages, but overall, approximately 9 percent of the total population were socially blind—that is, visual acuity of 20/200 or worse in the better eye.

Total blindness, or no light perception in either eye, for the entire population was 2.7 percent.

The rate of social blindness in this region is approximately 95 times higher than that for non-white U.S. population in 1968.

Dr. Ganley estimates that about 70 percent of blindness in the area studied is caused by onchocerciasis.

Two drugs available for treating the disease have serious side effects, but the ultimate goal of the WHO project is the eradication of the fly whose bites are responsible for transmitting the disease.

This can be done through a mass and prolonged spraying project. The larvae of the fly are extremely sensitive to a slightly higher concentration of DDT than is contained in U.S. rain water.

The spraying would have to be done continuously—for 10 to 15 years—and would have to cover all known waterways in a wide area.
The Patient's Library—An Oasis in the Clinical Center

A patient consults with Mrs. Swim about books on the bestseller list. In the background on the right, a Red Cross volunteer is loading a book cart with magazines and periodicals prior to starting her rounds to bedridden patients. The staff is also assisted by normal volunteers, patients, and members of the Junior Woman's Club of Chevy Chase, Md., Inc.

In a corner of the library that's all their own, young CC patients listen enthralled as Mrs. Swim reads a bedtime story—perhaps a fairy-tale, or a story about a folk-hero or a foreign country. Books on games and crafts are also kept here. Bedridden young patients are not deprived of their story hour, volunteer readers take over that pleasant task.

Here's a case where intravenous tubes and a bandaged eye do not interfere with enjoying a good book via a recording. The talking books are provided by the Division for the Blind and Physically Handicapped of the Library of Congress. The Montgomery County Public Library system also supplies books to the Patient Library.

A patient who cannot use her hands is helped by a bookholder and automatic page turner. She is turning the pages by pressing the button with her chin. A plastic adhesive enables the metal arm of the device to pick up the pages; a wire at the bottom holds the page in place after turning.

The Patient's Library is located in a side corridor on the seventh floor of the Clinical Center. It is a quiet oasis away from the action of both the research laboratories and the nursing units.

But that is not to say it isn't busy. The taking out and returning of books—more than 5,000—70 periodicals, and 3 daily newspapers, are handled efficiently by volunteers and the staff of the Patient Activity Section under Lois Swim, supervisory librarian, assisted by Renée Patrick, library technician, and Nan Hutchison, PAS, whose duties include helping in the library part of the work-week.

When the patients are unable to go to the library—the library comes to them. A bookcart trundled by Red Cross volunteers, and piled high with books and magazines to tempt every literary taste—from hammock fiction to think pieces—is brought to their rooms. That is only one of the several services provided by the library to pleasantly while away the hours spent at the CC.