Wm. M. Doak is Chief Of Extramural Services Branch in Eye Institute

William M. Doak has been appointed chief of the Extramural Services Branch of the National Eye Institute.

The Extramural Services Branch, formerly the Contracts and Grants Branch, is responsible for the business management of research grants, coordination of research contract activities, and operation of the Institute's management information system under

Environmental Safety Branch of DRS Is Model for Nation's Scientific Community

Most people know NIH as a pacesetter in medical science. But just as important is NIH's role as a model to the scientific community in the area of environmental health and safety. Rarely does the lab safety issue surface in the public's view—the current controversy over recombinant DNA experiments is an exception. That safety usually remains a behind-the-scenes concern is a testimony to the success of the safety efforts.

Safety at NIH has many facets—general plant, biohazards, laboratory, radiation use, and industrial hygiene.

Activities Coordinated
The activities are coordinated by Dr. Rudolf G. Wanner, associate director for Environmental Health and Safety, Division of Research Services.

He is assisted by Vinson R. Ovitt, chief of the Environmental Safety Branch, DRS, and by Michael Musachio, chief of the Radiation Safety Branch.

Their work is coordinated with the Office of Occupational Medicine Service, the Occupational Safety and Health Administration, and other related agencies.

Members of the professional staff
(See SAFETY MODEL, Page 9)

Diabetes Day Meeting Tells Practicing Doctors Latest Clinical Advances

Diabetes Day, a 1-day symposium on the skilful management of the diabetic patient, will be presented Saturday, Sept. 24, from 8 a.m. to 5 p.m. in the Masur Auditorium.

Designed for the practicing physician, physicians in training, and allied health professionals in the field of diabetes, the program will focus on the transfer of new advances in the treatment of diabetics mellitus from the clinical research laboratory to practical application.

Features Experts
Lectures and panels will feature recognized authorities on various aspects of diabetes management, interspersed with frequent discussion and audience participation.

The symposium will consider foot care for the diabetic as well as practical problems in the management of diabetes in pregnancy.

Kidney transplants and the challenges posed by diabetic nephropathy, and a review of difficulties in interpretation of the oral glucose tolerance test will also be presented.

Completing the agenda are discussions on adverse reactions encountered in the use of insulin
(See DIABETES DAY, Page 8)

Breast Cancer Screening Panel To Examine Issues And Consider Programs

The issue of breast cancer screening will be examined at a meeting Sept. 14, 15, and 16 in the Masur Auditorium in daily sessions from 8:30 a.m. to 6 p.m.

Sponsored by NIH and the National Cancer Institute, the meeting will deal with large-scale breast cancer screening, including the use of X-ray mammography in routine screening programs.

A panel of leading scientists and clinicians, along with lay people, will hear a series of presentations by individuals who have been active in the continuing discussion of breast cancer screening.

Brief presentations will also be made by other concerned professionals and the public.

May Reach Consensus
Following the formal presentations, the panel will attempt to reach a consensus on modalities for breast cancer screening in terms of risk and benefit.

Dr. Samuel O. Thier, department of Internal Medicine, Yale University, is chairman of the NIH/NCI consensus development meeting.

The panel will consider the question of screening to detect breast cancer in apparently healthy women.

The screening techniques to be considered are medical history, physical examination, mammography, thermography, and breast self-examination. They also will consider alternatives to screening programs and populations and ages appropriate for screening.

Recommendations Expected
The panel is expected to make recommendations for breast cancer screening programs now available through medical-care systems.

If indicated, the panel will define clinical trials required to provide additional information pertinent to breast cancer screening.

Among the materials to be presented to the panel are a review of three reports submitted to NCI in March 1977.

These evaluated the potential benefits of mammography based on
(See SCREENING, Page 10)
Published biweekly at Bethesda, Md., by the Editorial Operations Branch, Division of Public Information, for the information of employees of the National Institutes of Health, Department of Health, Education, and Welfare, and circulated by request to interested writers and to investigators in the field of biomedical and related research. The content is reprintable without permission. Pictures are available on request.

The NIH Record reserves the right to make corrections, changes, or deletions in submitted copy in conformity with the policies of the paper and the Department of Health, Education, and Welfare.

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NIH Gang Loses to WWDC

Good times and high spirits won out over thunderstorms and lightning as the WWDC Radio Wonderguss the NIH Gashouse Gang at the Second Annual Patient Emergency Fund Softball Game at Georgetown Prep on Aug. 8. The final score was 10 to 5.

Over $800 was raised for the Fund which provides financial assistance for many Clinical Center patients.

A variety of baked goods were donated by R&W members, CC nursing staff, and other NIH staff members.

Door prizes were awarded quickly by master of ceremonies Frank Herzog, WTV Channel 9 sportscaster, and Captials hockey player Hartland Monahan as the rains descended over 200 spectators.

The most coveted prize of the evening, the official softball autographed by President Jimmy Carter, went to young David Lyon.

To contribute to the PEF, send contributions to the CC Social Work Department, Bldg. 10, Room 7D-33.

Registration for Fall Courses

To Begin at USDA on Sept. 17

Registration for fall quarter courses at the Graduate School, U.S. Department of Agriculture, will be held Sept. 17-24 in the USDA Patio, North Bldg., located on Independence Ave. between 12th and 14th Streets, S.W., Washington, D.C.

To get a listing of over 600 job-related and leisure courses being offered this fall, call the Graduate School, 447-4419.

Wonders in PEF Game

NIH Singers To Begin Rehearsals on Sept. 18

The NIH Singers, an a cappella chorus, will begin rehearsals Sunday, Sept. 18 for their annual holiday concert.

New participants in all sections are welcome. No auditions are held, but an ability to sight-read choral music is required.

Subsequent rehearsals of the R&W-sponsored group will be held every other Sunday evening in the homes of members.

Eastpark Group Meets Sundays

A smaller group, the NIH Madrigal Singers, will meet on alternate Sunday evenings. For further information, contact Dr. Lewis M. Norton, Ext. 61686.

NIH Singles Plan Sept. 8 Cocktail Party in Rockville

Members of the NIH Singles Club are invited to a cocktail party at the Paradise Restaurant (D.C. end of Congressional Plaza, Rockville Pike) on Friday, Sept. 8, from 5:30 to 9 p.m., with a cash bar.

Membership applications are available at the R&W desk, Bldg. 31, Room 1A18, Ext. 66061. The next business meeting will be Sept. 22 at noon, Bldg. 31, Conference Room 4A, Wing.

D.C. Resident-Employees May Campaign Locally

The Civil Service Commission has added the District of Columbia to the list of municipalities and political subdivisions where employees subject to the Hatch Act may be candidates and otherwise campaign for local office.

The Commission's action permits Federal and D.C. government employees residing in the District to take an active part in campaigns and elections for the offices of mayor, chairman of the Council, and member of the D.C. Council, as independent candidates or in support of or opposition to independent candidates.

Prohibits Non-Local Activities

However, employees subject to the Hatch Act may not engage in non-local partisan political activity (e.g., campaign for election of the non-voting Delegate to the House of Representatives) or be candidates or support or oppose candidates of a partisan political party.

Westwoods Win NIH Golf Ass'n 'Stroke' Play Title At Outing

The Westwoods wrapped up the NIH Golf Association stroke play title June 27 at the Washington Golf Course.

Their five best net scores totaled 306, a 6-over-par score, and they finished with 23 points to 29 each for the runner-up Ball Hawks and Oafs.

Seventy-six NIHGA members participated in the outing at the Washingtonian with three producing subpar net scores. Earl Kasamoto, of the Brain Waves, who fired a gross score of 76, was the only golfer to break 80.

Hispanic Heritage Week Celebrated in Programs Planned for Sept. 12, 13

President Carter has issued a formal Proclamation designating the week of Sept. 11 through 17 as National Hispanic Heritage Week 1977.

Americans will be asked to join in celebrating the significance of this week which recognizes Hispanic contributions to the economic, social, and cultural growth of the U.S.

Activities Listed

NIH will sponsor a cultural program on Sept. 12 and 13 in the Masur Auditorium. Everyone is invited to attend.

Monday, Sept. 12, 11:30 a.m.—Introduction, Welcoming Remarks by NIH Director Dr. Donald S. Fredrickson, Ena Camargo's Flamenco Group.

Tuesday, Sept. 13, 11:30 a.m.—Introduction, Welcome Remarks, Beto Montes (singer), Rene Montes' Mariachi.

Tuesday, Sept. 13, 8 p.m.—Introduction, Grupo Folklorico Chileno.

Randy Schools is New R&W General Manager

Norton, Ext. 61686.
‘Outstanding’ Summer Employees Honored

One hundred and eight summer employees were cited as outstanding at the Eighth Annual Summer Employee Awards ceremony on Friday, Aug. 19, held in the Masur Auditorium.

Ms. Stroman and Mr. McKay were honored as outstanding supervisors by summer employees at the recent eighth annual awards ceremony.

Schwartz, Associate Director for Administration, NIH, challenged summer employees to seek excellence in their future careers as scientists, physicians, and administrators, as well as in the broad range of employment fields, to aid an institution such as NIH in its commitment to improving health.

The ceremony officially marked the end of this year’s summer employment, and gonadal function will be covered in detail.

The course content will be suitable for applicants to the subspecialty board examinations in Endocrinology and Metabolism and carries AMA Category I credit.

A fee of $225 covers tuition and syllabus; however, fellows in training and full-time NIH personnel may register for $175.

Advance Registration Required for One-Week Course in Endocrinology

A 1-week course, A Review of Endocrinology; Diagnosis and Treatment, to be given Sept. 26-30, has been announced by the Foundation for Advanced Education in the Sciences.

Advance Registration

The course will include both didactic and problem-oriented sessions from 9 a.m. to 6 p.m. daily.

You don’t have to run like a rabbit—the mascot of the NIH Health’s Angels—to participate in the 1-mile fun runs sponsored for 8 consecutive weeks on Wednesday afternoons starting Sept. 14.

NR/Dr. Thomas Bower, vice chairman, and NIH Director Donald S. Fredrickson is chairman of the campaign.

"Instead of dragging the campaign on for 2 or more months, we hope to have everything wrapped up in just 3 weeks. Our emphasis will be first day contributions. We hope to have people contribute the first time they’re contacted rather than delaying their decision for several weeks," as Mr. Nilsen explains.

A staggered schedule has been organized so that each B/I/D will have its own Campaign Kickoff Day.

"We are attempting a totally new approach for this year’s Combined Federal Campaign effort," explains Ted Nilsen, coordinator for the 1977 campaign and budget analyst in the Division of Research Resources, the lead B/I/D for this year’s campaign.

Mr. Nilsen, 1977 CFC coordinator, makes plans for the totally new approach to be used during this year’s campaign.

"If someone wants to give to a specific agency, they can do so by designating their contribution.

"If people cooperate and get involved, this year’s campaign should be a pleasant and successful one. What each person contributes is, of course, up to one’s conscience, but we believe everyone should give something."

Film Cites Importance Of CPR Training for All

A 15-minute color film, entitled “A Life in Your Hands,” featuring Burt Lancaster, will be shown by the Occupational Medicine Service on Sept. 13, 14, 15, and 19.

This movie is an introduction to CPR (cardiopulmonary resuscitation) and stresses the importance of CPR training for everyone.

It is being offered at the time and places indicated:

Tuesday, Sept. 13, 11:30 a.m. and 12:15 p.m., Bldg. 1, Wilson Hall.

Wednesday, Sept. 14, 11:30 a.m. and 12:15 p.m., Federal Bldg., Room B-119.

Thursday, Sept. 15, noon and 12:30 p.m., Westwood Bldg., Room 428.

This film has been distributed to over 500 agencies throughout the country by the George Washington University Film Center.
Vitamin E lessens the harmful effects of the widely used anticancer drug Adriamycin on heart muscle in a strain of laboratory mice, according to scientists at the National Cancer Institute.

The vitamin protected normal tissue without diminishing the drug's activity against cancer in the animals. Dr. William McGuire reported these findings May 19 at the 86th annual meeting of the American Association for Cancer Research in Denver, Colo. Other NCI scientists participating in the study were Dr. Robert C. Young, Karen Grott-King, and Dr. Charles E. Myers.

One of the most active anticancer drugs known, Adriamycin—a commercially available antibiotic—is active against at least 10 forms of cancer in man.

**Side Effect Described**

Unfortunately, a side effect of the drug is deterioration of the heart muscle that may lead to congestive heart failure. This side-effect has limited the total dose of Adriamycin that any patient can receive to 550 mg per square meter of body surface.

The quinone group of the Adriamycin molecule has been suspected of being responsible for damage to cardiac tissue.

Quinones are known to interfere with the generation of energy in mitochondria and other cell components by producing unstable molecules called "free radicals".

These free radicals set off in the cells a chain of chemical reactions, one of which may be damage to the cell's membrane, resulting in cell destruction.

**Interaction Produces Chemical**

A chemical called malondialdehyde is produced by the interaction of free radicals and lipids in the membrane.

Examination of heart tissue from mice treated with toxic doses of Adriamycin revealed high levels of malondialdehyde, according to Dr. McGuire, indicating the possibility that free radicals were being produced. Malondialdehyde could not be detected in heart tissue of normal mice.

Because vitamin E reacts with free radicals, preventing their reaction with other compounds, the NCI scientists postulated that it might protect the heart against Adriamycin-induced cell destruction.

A group of mice was given a single injection of 15 mg/kg of Adriamycin. Malondialdehyde levels peaked after 4 days; 85 percent of the animals died from drug toxicity by the 30th day.

Another group of mice was pretreated with alpha-tocopherol, the principal constituent of vitamin E, 1 day prior to receiving an equal dose of Adriamycin.

No elevation of malondialdehyde was seen in this group of mice, and only 15 percent of the animals died from drug toxicity by the 30th day.

**Some Destruction Blocked**

Examination of heart and other tissues from these animals confirmed that the vitamin E component blocked some destructive changes, Dr. McGuire says.

Free radical scavengers other than vitamin E did not protect mice from Adriamycin toxicity. Other agents tested included ethoxyquin, butylated hydroxyanisole (BHA), and butylated hydroxytoluene (BHT).

When Adriamycin was given to mice on a weekly schedule of 5 mg/kg for 5 weeks, 100 percent of the mice died by 90 days. In a group of mice pretreated with vitamin E, 1 day prior to drug administration, only 60 percent of the mice died by 90 days.

**Anticancer Effect Considered**

Adriamycin is thought to achieve its anticancer effect by binding to DNA, the cell's hereditary material, and blocking DNA and RNA synthesis. This reaction may be different from that which causes deterioration of heart tissue, the NCI scientist points out.

Vitamin E pretreatment did not block the anticancer activity of Adriamycin in mice bearing the P388 transplanted leukemia. In fact, use of the vitamin led to increased survival by permitting higher doses of the anticancer drug to be administered.

Before these findings in mice can be applied to cancer patients receiving chemotherapy with Adriamycin, additional studies will have to be done. Dr. McGuire said, information is needed on the effects of the vitamin on Adriamycin's toxicity to human heart tissue and activity against human cancer cells. Also, the doses of the vitamin required for protection in the human would represent an equivalent dose for man higher than ever before used.
NHLBI Issues Its Fourth Annual Program Report

The National Heart, Blood Vessel, Lung, and Blood Program: Fourth Report of the Director of the National Heart, Lung, and Blood Institute (DHHS Publication No. [NIH] 77-1170) is now available on request from the Public Inquiries and Reports Branch, NHLBI.

The report, recently forwarded by the President to Congress, reviews Institute activities, programs, and accomplishments during 1976 and outlines plans and project allocations for the National Program over the next 5 years.

Act Increases Authority

The National Heart, Blood Vessel, Lung, and Blood Act of 1972 increased the authority of NHLBI and directed the Institute and its advisory bodies to prepare and submit to Congress a plan for an expanded, intensified national effort to reduce illness, disability, and death from cardiovascular, lung, and blood disorders.

It further directed that the plan be updated each year and Congress be kept informed of present and projected activities, program progress, and achievements through reports submitted annually by the Institute Director and by the National Heart, Lung, and Blood Advisory Council.

Program is Joint Effort

NHLBI is the prime mover and coordinator of the National Program; but it is a joint effort involving participation of numerous other Federal agencies, voluntary health organizations, professional societies, and collaborative efforts with other countries, most notably the U.S.S.R.

The National Program is directed against a group of diseases that, collectively, kill over a million Americans each year, and bring illness or disability to tens of millions of others, and cost the economy over $60 billion in lost wages and productivity and costs of medical care.

The first two sections of the Fourth Report of the Director provide:

Provisions Outlined

1) data on the magnitude of the health problems posed by various cardiovascular, lung, and blood disorders; 2) historical background on Institute programs prior to and since the National Heart, Blood Vessel, Lung, and Blood Act of 1972; and 3) capsule summaries of recent research and clinical achievements stemming from the National Program.

Subsequent sections cover:

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Subsequent sections cover:

NIIH Research Team Develops Inexpensive Ultrasonic Real-Time Abdominal Scanner

An NIH research team has developed an inexpensive ultrasonic real-time scanner for obtaining a cross-section view of the upper abdomen.

The researchers—Dr. H. Shawker, William H. Schuette, and Willard Whitehouse of the Clinical Center and Division of Research Services—designed the mechanical sector scanning system which permits simultaneous, continuous viewing of the abdomen.

Ultrasonic scanners operate on the same principle as the sound-echo system of bats which enables them to dodge obstacles while in flight. Bats send out a high-pitched sound that generates a series of echoes when striking an object.

Signals Send Echoes

Similarly, the ultrasonic scanner’s pulsed sound signals send back echoes from the various tissue boundaries in the body. The scanner receives and converts the echoes to electronic signals which are seen on the TV screen as a black and white cross-sectional image of the body.

Unlike conventional static ultrasonic B-scanners, real-time scanners give a continuous “fluoroscopic” image.

Although real-time scanners have been used for cardiac and obstetrical diagnosis, the investigators designed this scanner to be of maximum value for abdominal study.

The scanner uses a single element ultrasonic transducer which mechanically rotates through a ± 25 degree angle. A counter-balancing rotation of the motor and transducer reduces mechanical vibration to a minimum.

Takes Linear Scan

A unique photoelectric feedback control permits a linear scan to be taken.

The unit is inexpensive and can be integrated as an “add-on” to commercially available static B-scanners. Transducers of different diameters and frequency can be interchanged, and the unit is electronically synchronized to a TV system for video recording.

The investigators have examined over 100 patients with the scanner and developed an examination technique for a rapid evaluation of the abdomen.

The unit is easily positioned on the patient’s body.

Abstracts, Proceedings Available for Oncogenesis, Herpes Virus Symposium

The Third International Symposium on Oncogenesis and Herpes Viruses, held July 25-29 at Harvard University, featured more than 100 oral and nearly as many poster presentations on herpes viruses.

The symposium was cosponsored by the Virus Cancer Program, Division of Cancer Cause and Prevention, National Cancer Institute, and by the International Agency for Research on Cancer (IARC), a component of the World Health Organization.

Included in each of seven sessions were two to four review papers that preceded information presented by scientists from the U.S., Canada, South America, Europe, Israel, Iran, Japan and Australia.

Cover Molecular Structure

The sessions covered the molecular structure of various herpes viruses, cell-virus interactions, host response to herpes virus infection and herpes virus-associated tumors, the role of co-factors and prospects for control of herpes virus-related diseases.

A limited supply of the abstracts is available for $5 per copy from Dr. Fred Rapp at the department of microbiology, The Milton S. Hershey Medical Center, Pennsylvania State University, Hershey, Pa. 17033.

Proceedings will be published by the IARC in about a year. Published papers from the last meeting, held in 1974 in Nuremberg, are available from the Q Corporation, 49 Sheridan Ave., Albany, N.Y. 12210 (IARC Scientific Publication No. 13, Part I—$40, and Part II—$32, prepaid, plus $1.10 handling).

As we advance in life, we acquire a keener sense of the value of time. Nothing else, indeed, seems of any consequence; and we become misers in this respect.—William Hazlitt
Animal Center in Poolesville

The NIH Animal Center is located on a back stretch of country road near White’s Ferry on the Potomac.

Upon entering the grounds one first sees a small herd of horses, and then, in the pasture beyond, two Holstein steers—2,000 lbs. each. A bit farther down the drive one hears the yelps of dogs, mostly English and American foxhounds. If they are out on their running areas they can be viewed from the roadway. They’re very curious about visitors and very friendly, rear ing up on their haunches and pressing their wet noses through the chain link fence—a thousand dogs competing for attention.

The horses, cattle, and dogs are just some of the large animals at the 513-acre Animal Center in Poolesville, Md. There also are the cats—including a 20-lb. fellow with a big meow—monkeys, sheep, goats, burros, swine, turkeys, and chickens, all contributing to a host of barnyard smells and sounds.

The Center, established in 1960 on the grounds of a former farm, is managed by the Animal Center Section of the Veterinary Resources Branch, Division of Research Services. It is headed by Dr. Francis Judge, a veterinarian.

The basic role of the Center is to supply the larger laboratory animals and animal by-products such as blood, serum, and tissue for biomedical research in the laboratories of the NIH.

The three quarantine (hooved stock) pens, Dr. Judge says, are equipped with postoperational gators in each, to provide the animals with all normal blood and postoperative care. About 1,000 experimental animals are quarantined at any given time in the Animal Center.
Poolesville Provides Veterinary Resources for NIH

Located on a back road in Poolesville, the Animal Center is just some of the 460-acre Animal Center is the primary NIH intramural resource for non-human primates and livestock and poultry. The center also supplies the NIH with normal blood and immune serum. The center is equipped with surgical, radiographic, and pre- and postoperative care facilities. The center has about 1,000 farm animals—10 horses, 11 cattle, 72 burros, 400 sheep, 300 goats, 100 swine, and 50 fowl.

The carnivore unit is the main NIH resource for research dogs and cats. There are 1,000 dogs, mostly foxhounds, 60 percent of which are bred at the Center, and 120 cats. The dogs are used for cardiovascular research and as blood donors; the cats are used for a variety of studies, including neurological.

The breeding of the dogs is under the charge of Dr. Thomas Wolfe, who is very pleased when someone comments about the friendliness of the dogs.

Socializing the dogs and the other animals is a major concern of Dr. Wolfe and the other center employees. Most of the employees are involved in the socializing process, and all like animals; everyone, Dr. Wolfe says, has a pet at home. Dr. Judge, in fact, has a pet goat—goats being his favorite animal.

While the open house primarily is for Poolesville area residents, Dr. Judge hopes more NIH'ers become aware of the facility. He remarked that the Center is underutilized by NIH researchers and said he would like additional investigators to spend more time at the Center, especially using its surgical facilities.

The Center, which includes power and sewage treatment plants, and security and grounds maintenance buildings, is cared for by the Division of Engineering Services and the Division of Administrative Services. An animal husbandman, a security guard, and an engineer have residences at the Center.
NIAID-Supported Boston Scientists Study Cellular Immunity in Thyroid Tumors

Boston investigators have reported that medullary thyroid cancer patients—and some of their family members at risk for the disease—exhibit a specific immune response to thyroid-tumor antigens. These findings support other evidence for an immune response to human, tumor-associated antigens and raise additional questions about the relationship between tumor immunity and cancer.

How the body protects itself against the development of cancer is poorly understood. However, some scientists believe that the cellular immune response—mediated by the lymphocytes—plays a key role. This response is thought to act as a type of immune surveillance system triggered by the presence of tumor-associated antigens—specific proteins located on the surface of certain cancer cells.

Lymphocytes Increase

In the presence of these antigens, the lymphocytes—functioning as specific immune defense cells—increase in number; and the lymphocytes interact with intermediary substances that fight off cancer cells.

Two laboratory measurements of this response are lymphocyte proliferation and the production of migration inhibitory factor (MIF)—a substance that inhibits the migration of guinea pig macrophages in a capillary tube. Cellular immunity has been observed in patients with breast and other types of cancer, and, in some cases, in their relatives and in household contacts.

No one knows why certain people develop this response and others do not. Scientists feel that a better understanding of cellular immunity may lead to improved methods of cancer detection and treatment, including immunotherapy.

In the presently reported study, the researchers partially supported by the National Institute of Allergy and Infectious Diseases—selected a family with a history of medullary thyroid cancer (MTC)—a genetic disease affecting nearly 50 percent of family members.

Disease Is Unpredictable

Although the course of the disease is frequently unpredictable, it is sometimes detectable in the early stages. High levels of calcitonin in the blood—a hormone produced by the thyroid gland—usually indicate a precancerous condition.

Although the role of the cellular response in MTC is unclear, the high frequency of the disease in affected families makes it a good model for studying the clinical significance of the response.

After examining thyroid tissue and measuring calcitonin levels, the researchers divided the 56 family members into four groups according to their clinical status with MTC.

Group I included 18 patients with the disease; Group II—seven patients with MTC, and hypercalcitoninemia—an abnormal increase of thyroid cells thought to be precancerous; Group III—12 members without symptoms but genetically at risk for MTC; and Group IV—nine members who had no symptoms and were not considered at risk.

Then, the scientists tested each person’s response to normal to thyroid-tumor antigens. The lymphocyte proliferation response and the production of MIF were used as indicators of a specific cellular immune response.

In addition, 25 normal people were used as controls and five patients with Graves’ disease—hyperthyroidism—were included to verify the specificity of the response.

In agreement with previous studies, the researchers found that lymphocytes from 12 of 18 patients with MTC exhibited a specific cellular immune response to thyroid-tumor antigens. In addition, four of the seven patients with C-cell disease exhibited a similar response.

Observe Family Response

Of special interest, according to the researchers, is the fact that 5 of the 12 normal family members at risk for MTC also responded specifically to the tumor antigens. In contrast, cellular immunity was observed in only 2 of the 25 normal subjects and in only 2 of the 9 normal family members not at risk.

The researchers concluded that a cellular immune response in healthy family members at risk is inexplicable, the researchers suggest that laboratory measurements of cellular immunity may be detecting early C-cell disease in these people. They add, however, that further studies are needed to prove this hypothesis.

More importantly, these findings raise interesting and conflicting thoughts about the role of immunity in the development of cancer. It is not known whether the development of a cellular immune response offers protection against MTC or causes its spread.

Question Role of MTC

If patients with MTC possess cellular immunity to tumor antigen, why did the disease develop and why can’t they rid themselves of it? One explanation, proposed by the investigators, is that the presence of inhibiting blocking factors produced by the tumors prevents cellular immune response from being therapeutically, including lipotoxins, allergy, and insulin resistance; and a rational approach to the treatment of diabetic ketoadiposis, a serious consequence of uncontrolled diabetes.

Dr. Lester B. Salans, associate director of the Diabetes, Endocrine, and Metabolic Diseases Program, NIAMD, will chair the discussions.

Register in Advance

Diabetes Day is presented free of charge by the National Institute of Arthritis, Metabolism, and Digestive Diseases. To inscribe admission, advance registration by mail is recommended.

Send list of registrants to Dr. Jesse Roth, Diabetes Branch, NIH, Clinical Center, Room SA-243, Bethesda, Md., 20014.

This program is approved for category 1 credit for continuing medical education.

Urge Use at NIH

The editors also suggest that anyone in NIH using a coded nomenclature for tumors consider using ICD-O to accumulate data that are comparable to national and international data banks.

ICD-O is available from World Health Organization booksellers or from the College of American Pathologists, Skokie, Ill.

It is a common error to infer that things which are consecutive in order of time have necessarily the relation of cause and effect.—Jacob Bigelow

Dr. D avid P. Beck Joins NIH Grants Associates

Dr. David P. Beck recently joined the Grants Associates Program for a year of training in health science administration.

The Grants Associates Program prepares biomedical and behavioral scientists for roles as health science administrators.

Dr. Beck graduated from Princeton University in 1966, receiving a B.A. degree in biology. He then went to Johns Hopkins University where he earned the Ph.D. degree in biochemistry in 1971.

For the next 3 years, he was a Helen Hay Whitney Foundation postdoctoral fellow at Harvard University, and in 1974 he joined the Maryland Psychiatric Research Center in Baltimore as a research associate.

Research Noted

Dr. Beck’s research interests include membrane biogenesis, membrane structure and function, mitochondrial metabolism, and transport mechanisms.

ONCOLOGY

(Continued from Page 4)

the four official languages of the World Health Organization—English, French, Spanish, and Russian—as well as in Italian, German, Portuguese, and several others.

The editors hope that the ICD-O will promote cooperation in the field of cancer by providing an internationally acceptable coding system for anatomy and morphology.

The ICD-O will be useful in pathology departments, tumor registries, cancer data banks, and many special cancer studies and will be used in all the Comprehensive Cancer Centers that are participating in the Statistical Analysis and Quality Control Program Funded by NCI.

ICD-O is available from World Health Organization booksellers or from the College of American Pathologists, Skokie, Ill.

It is a common error to infer that things which are consecutive in order of time have necessarily the relation of cause and effect.—Jacob Bigelow
SAFETY MODEL
(Continued from Page 1)
possess basic laboratory knowledge, often have backgrounds in biology or chemistry, and are trained in environmental safety and health. Experts in specific areas also aid the program.

On occasion, outside consultants are brought in, primarily to make an independent confirmation of safety test results. NIH safety specialists likewise often are requested to double check the standards of other Federal safety programs.

Dr. Wanner and Mr. Oviatt compare their work and the work of laboratory scientists.

"We Try Harder"
"Like the laboratory scientist, we're never satisfied with the results of our efforts," Dr. Wanner says. "We always try to find something new or better."

The difference, Mr. Oviatt explains, is that their staff is not involved in basic research but only in applied research. "We're here to help the research scientist build safety into the lab," he says.

Mr. Oviatt, a registered professional engineer, has a master's degree in public health and has been chief of the Division of Research Services, Environmental Safety Branch since 1969. A diplomat of the American Academy of Environmental Engineers, he has served from 1975 to date as chairman of the WHO Working Group on Laboratory Safety Elements and on the Council of the International Federation of Hospital Engineering.

Dr. Wanner notes the success of their endeavors but cautions that there seems to be an irreducible margin. "The one thing you always have to keep in mind is that you can't exclude occasional human error, such as accidents, errors in judgment, and other mistakes."

Dr. Wanner has held his current post since December 1974 when NIH combined all its environmental health and safety units into one program. The coordinated effort has served as a model for the

4-Year Framingham Eye Study Reports
On Eye Disease, Blindness Epidemiology

An epidemiologic study of factors that may be associated with increased risk of eye disease and blindness has uncovered new clues for research to prevent cataract and macular degeneration—leading causes of blindness in the U.S.

In the Framingham Eye Study, a joint project of the National Eye Institute and the Boston University School of Medicine, eye examination data were correlated with information on 550 health-related factors obtained from 2,975 residents of Framingham, Mass.—67 percent of the 3,977 surviving participants in an NIH study of heart disease risk factors since 1948.

The study's principal investigators are Harold A. Kahn, former chief of NER's Office of Biometry and Epidemiology and now professor of epidemiology at Johns Hopkins University School of Hygiene and Public Health, and Dr. E. Leibowitz, director of the department of ophthalmology, Boston University School of Medicine.

The Framingham Eye Study is the first large-scale attempt to determine the prevalence of eye disease in a well-defined and closely-followed population and to identify risk associated with eye disease.

Safety Office Relocates

The Safety Office, DRS, has moved to Bldg. 19, Room 2E41. The telephone number remains the same, Ext. 6933.

The rest of the scientific community.

Dr. Wanner and Mr. Oviatt are particularly proud that no secondary cases of infection have ever occurred, although lab accidents have happened.

One reason is that waste water from NIH is monitored to make sure no harmful contaminants escape into the community water supply.

They also attribute their success to safety consciousness promoted at NIH by DRS Director Dr. Joe R. Held and by other key personnel.

"We always have an open line to Bldg. 1," Dr. Wanner says. "NIR Director Dr. Donald Richardson himself is very safety and health conscious, and consequently gives us the support we need."

Dr. Wanner stresses the need for program improvements. "It's evolutionary. There are always areas to improve, always needs for training."

"People always tell me it's an impossible job. But I don't think so, although it's very challenging," he continued. "Our job is to make NIH employees safe and happy."

He smiles. "But while they are not always happy, usually they are safe."

4-year cooperative investigation by

For many years State agencies for the blind were the principal source of data on the prevalence and incidence of visual disorders and disabilities.

The value of this information is limited however, because it is restricted to cases of legal blindness and because the number of blind persons not registered with the State agencies is unknown.

Fred Ederer, chief of the NEI's Office of Biometry and Epidemiology, notes that on the basis of State data one would have expected to find about 7 legally blind people per 100,000 population with sex and age characteristics of the Framingham Eye Study group.

Blindness Underregistered

Instead, the Framingham investigators found that 22 of the 2,075 people screened were legally blind. This suggests a substantial under-registration of blindness with State agencies.

Members of the Framingham population were screened during 1973-75 for senile cataract, senile macular degeneration, open angle glaucoma, and diabetic retinopathy because the State agencies had consistently reported that these were the leading causes of adult blindness in the U.S.

When the Framingham Eye Study began, the age of the study population ranged from 52 to 85 years, the time of life during which these diseases occur most frequently.

The most important findings are:

• Framingham residents with senile cataract were found more likely to have increased levels of a type of blood fat (serum phospholipid), high nonfasting blood sugar levels, and high blood pressure.

• Associations with aging-related factors were also found, as expected. Only diabetes has been previously reported as a risk factor for senile cataract.

• Prevalence of cataract for both sexes was almost 5 percent for ages 52-64, 18 percent for those aged 65-74, and 46 percent for the 75-86 age group.

• Persons with senile macular degeneration showed a positive association with diabetes and hypertension, history of lung infection, and aging-related factors.

• Macular degeneration was also more common among women than men.

Prevalence of macular degenera-

NIH Visiting Scientists
Program Participants


7/25—Dr. John S. Harrington, S. Africa, Research Resources Program. Sponsor: Dr. John A. Moore, NIEHS, Research Triangle Park, N.C.

8/1—Dr. Soraya Naghshineh, Iran, Laboratory of Chemistry. Sponsor: Dr. Louis Cohen, NIAID, Bg. 4, Rm. 339.

8/8—Dr. Reuven Laskov, Israel, Laboratory of Microbial Immunity. Sponsor: Dr. Richard Asofsky, NIAID, Bg. 5, Rm. 235.

8/10—Dr. Suguru Fukushi, Japan, Laboratory of Vision Research. Sponsor: Dr. Jin Konishi, NEI, Bg. 6, Rm. 222A.

8/14—Dr. Ernest Winocour, Israel, Laboratory of Biochemistry. Sponsors: Drs. Edward Kuff and Marline Singer, NCI, Bg. 37, Rm. 4C03.

8/18—Dr. Dileep Deobagkar, India, Laboratory of RNA Tumor Viruses. Sponsor: Dr. John Stephenson, NCI, Frederick Cancer Research Center.

8/21—Dr. James L. Hill, Canada, Laboratory of Brain Evolution and Behavior. Sponsor: Dr. John B. Calhoun, NIMH, Bg. 112, Poolsville.

8/22—Dr. Noe van Dang, Pakistan, Laboratory of Vision Research. Sponsor: Dr. Hitoshi Shichi, NEI, Bg. 6, Rm. 214.

8/22—Dr. Yu-Ching Pan, Taiwan, Laboratory of Environmental Mutagenesis. Sponsor: Dr. Joseph Marcinkiszyn, NIEHS, Research Triangle Park, N.C.

8/25—Dr. Tomomi Oishi, Japan, Clinical Investigations Branch. Sponsor: Dr. Richard Webber, NIDR, Bg. 10, Rm. 2B09.

FINDINGS ARE PRELIMINARY

They caution that the Eye Study's preliminary findings may be a mix of real and chance associations, and therefore emphasize that these results may be replicated in an independent population before they can be considered as risk factors for eye disease.

Mr. Kahn and Dr. Leibowitz hope that further study of their preliminary findings will ultimately provide clues to the causes of eye disease just as the well-known Framingham Heart Study first identified major risk factors for coronary disease.

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NICHD Researchers Find Birth Defects, Aromatic Hydrocarbon Response Linked

A recently discovered genetic system, enabling the body to be protected from drug and other foreign substance poisoning, may render some individuals susceptible to birth defects. This is a finding of National Institute of Child Health and Human Development scientists working with Dr. Daniel Nebert, chief of the Developmental Pharmacology Branch.

According to Drs. Nebert, Shu Shum, and George Lambert, offspring of pregnant mice treated with poisonous chemicals called polycyclic hydrocarbons differ in their ability to metabolize them.

Conversion Results in Damage

Fetuses converting the toxics into a different form are far more likely to be deformed, stunted, or killed than fetuses metabolizing the chemicals less efficiently.

In the strains of mice studied, the individual mouse’s capacity to metabolize hydrocarbons is determined by a genetic system, the “aromatic hydrocarbon responsiveness locus.”

The Ah locus, discovered by Dr. Nebert and his co-workers more than 6 years ago, is present in many animal cells, including man. It consists of one gene or a small number of genes which control the body’s capacity to rid itself of numerous toxic substances.

Among these are hydrocarbons in cigarette smoke, charcoal-broiled foods, and automobile exhaust fumes. Other chemicals whose fate is determined by the Ah locus include fat-soluble compounds used as drugs, insecticides, and raw materials by industry.

If allowed to accumulate in the tissues, many of these substances are poisonous and may cause cancer, mutations, or birth defects. When one of the toxics enters a cell, the Ah locus in the cell’s nucleus is activated in some as yet unknown manner.

Activation of the Ah locus boosts the activity of a series of enzymes called monooxygenases. These enzymes modify the original toxic chemical into a new substance which can be attacked and further degraded by another set of enzymes called conjugating enzymes. The final product will be a harmless substance which can be excreted from the cell and from the body.

Individuals Differ

Individual humans and various strains of laboratory mice differ in their enzymatic response to hydrocarbons. In mice having a “responsive” form of the gene(s) at the Ah locus, exposure to hydrocarbons brings about a dramatic rise in monooxygenase enzyme activity.

In other mice, called “nonresponsive,” the increase does not occur at all in the liver and is small in all tissues other than liver. When a responsive mouse is mated with a nonresponsive mouse, the offspring are usually responsive. Genetically, it can be said that aromatic hydrocarbon responsiveness is a sex-linked, brown eye color in humans, is inherited as an autosomal dominant trait.

Through a series of crosses between genetically responsive and genetically nonresponsive mice, Drs. Shum and Nebert studied responsive littermates in which both genetic types were present in the same womb. In this situation, early exposure of the pregnant mouse to a polycyclic hydrocarbon causes massive damage to fetuses with the responsive gene(s) at the Ah locus.

Malformations Observed

About 75 percent of these fetuses are deformed or killed, and virtually all the survivors are growth retarded. In contrast, their nonresponsive littermates suffer fewer malformations, only a slight growth inhibition, and a much lower death rate.

Malformations observed in this study include cleft palate, club foot, absence of an eye, nose and jaw underdevelopment, kidney or liver abnormalities, and heart protrusion outside of the body cavity.

Suggest Link With Smoking

This study proves that genetic factors within fetal tissues can determine fetal susceptibility to birth defects when the baby in the womb is exposed to chemicals by way of the mother.

Results also suggest a possible explanation for the high incidence of low birth weight of human infants whose mothers smoked cigarettes during pregnancy. It seems likely that this form of intrauterine growth retardation may be caused by hydrocarbons “triggering” the Ah locus.

Responsiveness Aids Adults

For an adult animal receiving hydrocarbons in its food, having the responsive form of the gene(s) at the Ah locus can be of considerable survival value. This trait enables the animal to dispose of the hydrocarbons more efficiently. However, for the embryo or fetus exposed to a toxic hydrocarbon, the fetus may break mature “triggered” by a foreign hydrocarbon, the fetus may break down hormones needed for normal growth and development.

This mechanism could explain the high incidence of low birth weight observed in the responsive fetuses.

Laboratories around the world are now attempting to apply Ah locus information to the prevention of human disease. A search is underway to identify human groups or individuals whose Ah responsiveness places them at risk for diseases caused by environmental chemicals.

NICHD researchers are collaborating with National Eye Institute investigators to determine whether the Ah locus plays a role in causing cataracts to form in response to certain drugs and in causing retinitis pigmentosa, a degenerative disease of the eye.

Current NICHD studies aim at a more detailed understanding of the monooxygenase enzymes and the genetic control mechanisms enabling the Ah locus to respond to hydrocarbons.

Note Interaction

In the exploratory phase, the group’s work has already begun illuminating one of the most mysterious areas of human biology—the area of gene-environment interaction. From their work and other scientists’ work, it may someday be possible to detail how a specific gene and a specific environment’s pollutants act together at the cellular level causing death, disease, and disability.

The NCI Office of Program Planning and Analysis staff recently received a group award for superior performance in carrying out their activities in planning, analysis, management, budget forecasting, and information systems. Receiving the award were (standing l to r): Michael Brown, Dr. Michael Klein, Dr. Abraham Cantorow, Dr. Yaman Wadudkar, Florence Livingston, Jack McShilukis, Barbara Murray, Joseph Sbro, Douglas Pugh, Corale Maloney, Sheila Morris, Dr. Robert Love, Dr. Elliott Stonehill, and Joanna Pape. Seated (l to r) are: Christine Hauptman, Louis Carrese, associate director, OPPA, who recommended the group for the award, Dr. Guy R. Newell, then acting Director of NICHD who presented the awards, Ora Bynum, Betty Ann Sullivan, and Joseph Bangiolo. Not shown: Jacqueline Parkham and Dr. Daniel Rubin.
The occurrence of Graft Versus Host Disease (GVHD) and survival of patients with aplastic anemia treated by bone marrow transplantation is strongly associated with sex. The Seattle researchers have found marrow graft rejection by the sex mismatched donor (male) and recipient. This is the major finding of NIAID-sponsored researchers at the University of Washington and Fred Hutchinson Cancer Research Center in Seattle, Wash., who reviewed the records of more than 70 aplastic anemia patients who were bone marrow recipients. Recent studies have indicated that grafting marrow from an HLA identical sibling is more effective than conventional therapy for the treatment of severe aplastic anemia.

However, high mortality is still associated with this procedure and can largely be accounted for by marrow graft rejection and GVHD.

Two Factors Associated

The Seattle researchers have been concerned with both of these phenomena. In other investigations, they have found marrow graft rejection to be associated with two prognostic factors: positive in vitro tests of sensitization of marrow recipient against marrow donor and a low number of marrow cells used for transplantation.

The present analysis was aimed at identifying prognostic factors associated with GVHD and survival of those patients who did not reject their marrow graft, but rather showed sustained marrow engraftment.

Of 78 consecutive patients with severe aplastic anemia treated by marrow transplantation from HLA identical siblings, five patients died within 8 days following transplantation, too early for meaningful evaluation.

In addition, 21 patients rejected their initial graft, and only two of them survived. In contrast, the scientists reported there were only 18 deaths among 47 patients who had sustained engraftment. In 16 of these patients, death was associated with GVHD.

Study Sustained Engraftment

Twenty-nine of the 47 patients with sustained engraftment were alive with complete hematologic restoration between 8 months and 5 years at the time this study was reported.

Since GVHD was obviously not a problem in patients with graft rejection, the scientists felt that it was reasonable to focus analysis in this study on the group with sustained engraftment.

The Seattle researchers used statistical methods to analyze the pre- and post-transplantation data in order to identify factors that predicted survival.

Of the 24 factors entered into the analysis, only two strongly correlated with survival: (a) sex match of the donor and recipient and (b) absence of refractoriness (unresponsiveness) to random donor platelets at the time of transplantation.

However, refractoriness adversely influenced only the survival of the sex mismatched patients.

According to the scientists, this data suggests that X and Y associated transplantation antigen systems are important determinants of the outcome of marrow grafts between HLA identical siblings for the treatment of aplastic anemia.

However, they stress that these findings are based on data involving a rather small sample size (47 patients, 18 deaths) and that factors such as preceding androgen treatment and age should be more closely monitored in future studies. In addition, the mechanisms by which refractoriness to random donor platelets influences survival are currently unclear.

If these findings have some obvious therapeutic implications, e.g. selection of a sex matched marrow donor if several HLA identical siblings are available, and early transplantation (a) because of the excellent chances for survival in the case of a sex matched recipient, and (b) to prevent further deterioration of the chances for survival in the case of a sex mismatched recipient by avoiding the development of refractoriness.

May Develop Detection

In addition, the Seattle scientists believe that knowledge of the association of antigens important for the development of GVHD and the X and Y chromosomes in man might lead to the development of in vitro typing techniques to detect these antigens.

Availability of such typing techniques will facilitate the selection of donor recipient pairs for marrow transplantation in aplastic anemia.

This study was reported in the April 1977 issue of The Journal of Clinical Investigation by Drs. Rainer Storb, Ross L. Prentice, and E. Donnan Thomas.

Women Golfers Meet Sept. 15

The next meeting of the NIH Women's Golf Association will be held on Thursday, Sept. 15, at 7:30 p.m. in the Bldg. 1 Cafeteria (3rd floor).

Election winners will be announced, and plans for the 1978 season discussed.
Look at Hypertension Opens Weekly Series, Medicine for Layman

The Clinical Center invites NIH employees, their families, and friends to boost their health IQ's at a weekly series of seminars entitled Medicine for the Layman. The series begins Tuesday, Sept. 20, at 8 p.m. in the Masur Auditorium with a look at the problem of hypertension.

Dr. Harry Kaiser, clinical director of the National Heart, Lung, and Blood Institute, will examine the highs and lows of the problem, including its causes, its effects on the body, and recent advances in treating the disorder.

Each hour-long presentation will be accented by colorful and entertaining illustrations designed by noted local artists.

On Sept. 27, Dr. Robert Butler, director, National Institute on Aging, and winner of a Pulitzer Prize for his book, Why Survive? Growing Old in America, will discuss the biological processes of aging and current research in that area.

Diabetes is the topic for Oct. 4. Dr. Jesse Roth, chief of the Diabetes Branch, National Institute of Arthritis, Metabolism, and Digestive Diseases, will speak on the different types of diabetes, clues to help detect the disease, complications, and treatment for diabetics.

Will Discuss Hormone Levels

CC Director Dr. Mortimer Lipsett will discuss the menstrual cycle and fertility on Oct. 11. Part of his talk will deal with the significance of hormone level changes as they relate to menses, oral contraceptives, conception, and menopause.

The lectures will be held every Tuesday evening at 8 p.m. (except Nov. 8) and will continue through Dec. 13.

Other topics scheduled later in the series include: Immunity, Oct. 18; The Heart: Diagnosis and Treatment, Oct. 25; Heart Attacks, Nov. 1; The Brain, Nov. 15; Obesity and Energy Metabolism, Nov. 22; The Lungs, Nov. 29; Cancer: What Is It?, Dec. 6; and Cancer Treatment, Dec. 13.

Graduate School Registration For Fall Will Begin Tomorrow

Evening courses for the fall semester of the Graduate School at NIH begin Monday, Sept. 19. The Graduate School is sponsored by the Foundation for Advanced Education in the Sciences.

Registration starts Monday, Sept. 8, through Sept. 14 in the Clinical Center, Room B1-L-101.

For a catalog or further information, call Ext. 65272.

Series on Mental Retardation Published: Results of 12 NICHD-Supported Centers

The NICHD book series represents the work of the entire MRDDB staff, (standing l to r) Drs. Theodore D. Tjossem, Felix de la Cruz, Lyle Lloyd, Michael J. Begab, and (seated l to r) Evonne Williams, Faith YenScyoc, and Mary Kern.

The Mentally Retarded and Society: A Social Science Perspective, part of the National Institute of Child Health and Human Development Mental Retardation Research Center Series, was termed "a new milestone" in a book review in the June 10 issue of Science magazine.

A major portion of this book pertains to the treatment of retarded individuals including mainstreaming, deinstitutionalization, normalization, foster family care, and vocational training.

It includes chapters on general communication problems, attitude change, compensatory education, and the treatment of juvenile delinquency.

The 8-book series is the result of a state-of-the-art conference planned jointly by the NICHD and its 12 mental retardation research centers.

The centers, located at geographically dispersed universities, differ considerably from each other in the breadth and depth of their research emphasis.

Centers Described

Most of the centers are multidisciplinary, embracing biological, behavioral, and clinical research. Some are more narrowly focused on biomedical science while others are primarily behavioral in their approach. As a unit, the centers are an extensive effort reflecting the complexity of the mental retardation problem.

Accordingly, the series reflects the complexity of the problem and includes articles on basic and applied research; an extensive bibliography is part of each book.

Dr. Michael J. Begab, head of NICHD's Mental Retardation Research Centers Program and co-editor of the reviewed book said the series has many uses in addition to archival value.

Together, the books provide new investigators, practitioners, and attractives in NICHD's MRDDB.

Other articles include caregiver/infant interaction, the infant's auditory environment, trends in behavioral research, and international perspectives.

The book is a reference for educators, therapists, clinicians, and researchers as well as nonprofessionals involved with the care and treatment of developmentally disabled children.

Others in Series Listed

Other books in the series are Brain Mechanisms in Mental Retardation, Methodological Approaches to the Study of Brain Maturatation and Its Abnormalities, and Antenatal Diagnosis.

Soon to be released is Communication and Cognitive Abilities—Early Behavioral Assessment, edited by Dr. Lyle Lloyd, Health Scientist Administrator for the MRDDB.

An excellent review of the series, Published in The American Journal of Mental Deficiency, entitled Observing Behavior, Volumes I and II is also in press.

Additional information on the books may be obtained from Dr. Begab, NICHD, Landow Building, Room C708, 7910 Woodmont Ave., Bethesda, Md. 20014 (301-496-1385).