Six NIH Components Win 1982 Blue Pencil Awards

Two NIH publications shared first prize in the recent 1982 Blue Pencil Publications Contest of the National Association of Government Communicators.


Third prize in the same category was awarded to the National Heart, Lung, and Blood Institute for their publication, *Exercise and Your Heart*, by Dr. Stephen Havas and Sheila N. Pohl.

These awards were among six received by NIH components.

Second prize in category 11 for news release was awarded to NCI for Clinical Study of Laetrile in Cancer Patients Investigators' Report: A Summary by Eleanor Nealon. Two attachments accompanied the press release entitled Statement of the National Cancer Institute on Laetrile Tests with Patients, and Chronology of National Cancer Institute Studies of Laetrile. In category 13, feature release, honorable mention was given to NCI for Identifying Melanoma-Prone Individuals by Florence Karlberg.

The NHLBI won honorable mention in category 15, visual design, for the graphics in the publication *Exercise and Your Heart* by Sheila Pohl.

New Potent Chemical Compounds Identified in Allergic Reactions

By Joan B. Hartman

Identification and characterization of a class of biological compounds promises to change dramatically understanding and treatment of allergic asthma, inflammatory diseases and coronary artery disease.

The compounds are leukotrienes. Chemically characterized only 3 years ago, they are 600 to 9,000 times as potent as histamines, which cause itching, sneezing and swelling during allergic reactions.

Leukotrienes constrict small airways in the lungs, a cause of breathing difficulty in asthma, and also may increase permeability of small blood vessels, constrict coronary arteries and cause white blood cells to concentrate at inflammatory sites.

Now, human studies support laboratory findings of a role for leukotrienes in asthma. In the Apr. 9 issue of *Science*, National Institute of Allergy and Infectious Diseases grantees, Drs. K. Frank Austen and Robert Lewis of the Harvard Medical School, reported that leukotrienes were up to 9,000 times more potent than histamines in reducing expiratory volume of the small airways in healthy volunteers.

Present understanding of leukotrienes is based on accrued findings of only a few research groups worldwide, working independently. Among them are Dr. Austen's group at Harvard and that of another NIAID grantee, Dr. Charles W. Parker of the Washington University School of Medicine in St. Louis.

GM Cancer Foundation Awardees To Speak June 16

Three prize winners of the fourth annual General Motors Cancer Research Foundation Awards (each to receive a solid gold medal and $100,000 in cash) will present scientific lectures on Wednesday, June 16, in the Clinical Center Masur Auditorium from 1 to 3 p.m. Their names will be made public June 15 at a press conference in New York City.

The lectures are open to all NIH employees on a first-come, first-served basis. The Clinical Center's 14th floor auditorium will accommodate any overflow with a color video transmission.

This is the second year that the lectures are being held at NIH. They are expected to be held here for the next 4 years.

Three awards are given for the most outstanding contributions in specific areas of cancer research: the Charles F. Kettering Award, for research in the diagnosis or treatment of cancer; the Charles S. Mott Award, given in the area of cancer prevention including environmental influences; and the Alfred P. Sloan, Jr. Award for basic science research, particularly in the areas of etiology and pathogenesis of cancer.

Last year, Dr. Wallace P. Rowe, chief of the NIAID Laboratory of Viral Diseases, received the Sloan Award for his work with the genetic interactions between tumor viruses and host cells.

Candidates for the awards are nominated by some 8,000 to 10,000 professors or associate professors in leading medical institutions and universities. Recipients are selected by the General Motors awards assembly consisting of 27 international cancer research scientists. Dr. Vincent De Vita, Director of the National Cancer Institute, is a current member of the assembly.

The awards presentations will take place in the evening (by invitation only) at the U.S. State Department following the NIH lectures.
Misconduct in Science Forum To Be Held June 25

Misconduct in Science: Prevention, Diagnosis, and Therapy is the subject of a forum scheduled for Friday, June 25, from 2 to 4 p.m. in Bldg. 1, Wilson Hall.

Sponsored by the Extramural Program Management Committee, the forum is intended for NIH staff who are responsible for the scientific and business management of grants, cooperative agreements, and contracts.

Dr. William F. Raub and Mary L. Miers of the Office of Extramural Research and Training will discuss issues raised by misconduct in NIH-funded programs and efforts now under way to refine existing procedures and develop new ones.

They will report on the progress of several working groups established by the EPM committee to propose new policies where needed and suggest ways to encourage awardee compliance with existing regulations and guidelines.

Additional information may be obtained from Ms. Miers at 496-5366. 

CPR Training Is Available to All

The CPR Training Office is offering ongoing courses for all NIH employees, including nonmedical beginners as well as medical background participants. Call 496-4111 for further information.

Many Experience Asian Pacific American Heritage Week Activities

Seeing how cultural treasures of different oriental societies are preserved today, and learning and participating in traditional arts and crafts at lunchtime were part of the unique opportunities presented to NIH employees this year. The NIH Asian American Cultural Committee, in collaboration with the NIH Division of Equal Opportunity, organized Asian Pacific American Heritage Week, May 12-14, under the theme, Love for Young and Old.

As in previous years, the week was highlighted with gala Friday evening performances done by local and international artists. A candle dance by the Khmer Classical Dance Troupes, some of whom had danced with the Royal Ballet of Cambodia (top left corner and bottom right) began the evening’s entertainment.

Throughout the week in the patio area next to Bldg. 31, employees for the first time saw the making of traditional arts and crafts. Toki Miyakawa demonstrated ikenobu or flower arrangement. Kite making, Chinese brush painting and cooking, and Indian saris were just some of the many demonstrations presented.

Baris—the classic Balinese dance that portrays the rapid angular movements of a warrior was performed by Eddy Nugroho. The Tien Yun Chinese Youth Orchestra played selections by Chinese composers.

Gujaratti and classical folk dancing also involved some younger performers. The traditional Fan Dance was gracefully executed by Vietnamese dancers.

The Power of Chi or inner strength was shown by experts from the Chuei Ju Martial Arts school, who broke boards and bricks and bent steel.

The 4,000-year-old Bharathnatyam—or sacred classical dance of the southern region of India—was performed by Mrs. Ramanathan.

Each cultural activity seemed to be a continuum of the program’s logo of Long Life (center) surrounded by the five blessings from heaven. □
A unique laboratory animal model from Israel—the psammomys—is providing scientists clues about diabetes. A disorder of carbohydrate, protein and fat metabolism, diabetes profoundly affects the lives of as many as 11 million men, women, and children in the United States.

Dr. Harvey Pollard, Laboratory of Experimental Pathology, NIAID, is studying the psammomys (sa-mo-mez), a rodent found living on the edge of the Dead Sea in Israel. The native environment of the psammomys is hot, dry, and salty. The animals feed on a plant called salt bush and eat a special type of seed. They drink little water.

When removed from their natural environment and fed a “normal” laboratory diet, the psammomys develop a condition remarkably like the human obese diabetic state. The insulin and glucose levels in the animals remained high, but at about 20% lower than normal values. A certain percentage also develop cataracts, although they do not seem to display any of the specific long-term human diabetic complications such as kidney failure, retinopathy, or circulatory problems.

Diabetes Reversed

More remarkable is the fact that the “diabetes” in psammomys can be reversed by returning the animals to the Dead Sea area or by giving them their original diet. A fascinating part of the investigation is capturing these large, honey-colored gerbils by the coordinated efforts of native robed bedouins, firemen and fire engines from Jerusalem, and scientists from Jerusalem’s Hadassah Hospital. The firemen pump water into a burrow, while the bedouins position themselves at other burrow entrances to catch the fleeing gerbils with nets.

The animals obtained in this way have aided Dr. Jonathan Adler of Hadassah Hospital in developing a self-propagating colony of psammomys. Several research projects using psammomys are conducted at the hospital under the direction of Drs. Erol Cerasi, Elazar Shafir and others.

Recently, Drs. Pollard and Kari Susseman, sponsored by the Fogarty Center while on leave from the Denver Veterans Administration and the University of Colorado School of Medicine, joined Drs. Cerasi and Shafir in Jerusalem.

Their purpose was to determine how the diabetic psammomys islets (islets are the insulin-producing cells of the pancreas) differed from normal islets. The scientists focused on three major areas: the microscopic characterization of the islet, the glucose regulatory mechanism, and the function of somatostatin receptors.

Examination of the diabetic psammomys islet cells showed an increase in number and size of the cells. Fatty infiltrates seemed to be present, a property also found in obese human diabetics.

The glucose regulatory mechanism, however, seemed intact. That is, raising the glucose concentration caused islets to secrete insulin. In addition, somatostatin receptor function seemed undisturbed. Somatostatin is a hormone which itself stops secretion of a number of hormones, including insulin. Therefore, the reasons for the animals’ persistent diabetes when given “normal” food remained hidden.

The scientists then considered whether diabetes in the psammomys might have some evolutionary survival value. Psammomys usually have little food. But when they finally do obtain food, a prolonged blood sugar such as that displayed in diabetes, would allow the animals to store most of it as fat for use during periods of famine.

Thus, short-term “diabetes” may have survival value for the psammomys, an insight with possible relevance to human disease.

For example, Native Americans appear to be prone to developing a similar diabetes consisting of obesity, high blood insulin, and high blood sugar when they eat a “normal” American diet and exercise very little.

This condition has been most studied in Pima Indians of the Southwest by an intramural NIAID research program in Phoenix, Ariz., directed by Drs. Peter Bennett and Lester Safars.

Some kinds of human diabetes may possibly be an inappropriate expression of an otherwise useful evolutionary adaptation to cycles of feast and famine as exhibited in the psammomys model, according to the scientists.

These theories have led Dr. Pollard to consider the psammomys to be among the most relevant laboratory animal model for studying the pathogenesis and therapy of human diabetes.

—Linda Stalvey

Attention Motorists!!!

Beginning Monday, June 14, the intersection of South and Center Drives will become a 4-way stop intersection. Be aware of this change and exercise extreme caution at this and all intersections as well as all pedestrian crosswalks, say officials.
Multiple Sclerosis Marker in Myelin
Found by NINCDS Intramural Scientists

The breakdown of a recently identified glycoprotein found in layers of nerve-protecting myelin could be an important clue to understanding multiple sclerosis, says the scientist whose research team has discovered and investigated the phenomenon.

According to Dr. Roscoe O. Brady, chief of the Developmental and Metabolic Neurology Branch, National Institute of Neurological and Communicative Disorders and Stroke, a reduction in myelin-associated glycoprotein (MAG) occurs in the inner layers of fatty myelin when multiple sclerosis attacks the body.

Dr. Brady and his NINCDS colleagues Drs. Richard H. Quarles and Henry Webster have also found that MAG disappears in normal-appearing tissue surrounding MS lesions in the brain—the first change detectable in the process of demyelination.

In multiple sclerosis, demyelination is characterized by the destruction of patches of nerve-insulating myelin—damage that blocks or slows down nerve impulses traveling through the brain and spinal cord. Demyelination, though frequently associated with MS, is also a symptom of other neurological disorders. Dr. Brady believes that the discovery of the destructive process in MS could help patients with other disorders in which myelin may be affected.

In the early 1970’s, Drs. Quarles and Brady began to look at the biochemical mechanisms of myelin development to learn more about what may cause myelin to disintegrate. Their theory of myelination, now generally accepted, was that during cell migration in early life, certain cells (called oligodendroglial cells) in the central nervous system interact with the axons of nerve cells.

Specific glycoproteins (proteins with a carbohydrate group attached) in the membranes of the oligodendroglial cell—MAG has now been isolated and chemically characterized. It is selectively located on the inside of the myelin sheath next to the axon—where myelin formation begins—suggesting that MAG is involved in the interactions between the oligodendroglial cell and the axon.

Although myelin is formed from glycoprotein-rich cell membranes, the maturing layers were thought to contain little or no glycoprotein. Drs. Quarles and Brady, however, found MAG in myelin isolated from the rat and later from the human central nervous system. They also found that as successive myelin layers matured and became more closely bound together, the size of MAG was reduced by as much as 10 percent.

These discoveries led the scientists to speculate that MAG was produced to promote formation of new myelin and to control the maturation process in which myelin layers are bound together.

Intrigued by this hypothesis, Drs. Brady and Quarles were joined by Dr. Webster and other scientists in studying the distribution of MAG in myelin damaged by multiple sclerosis. The results were striking. The scientists, using immunohistochemical and radioimmunoassay techniques, found evidence of the selective loss of MAG in MS-damaged myelin. Even more importantly, normal-appearing tissue in the area of MS lesions showed evidence of considerable MAG breakdown.

This breakdown, which was found to occur before actual myelin destruction, was the first biochemical or structural change detectable in the process of demyelination.

How this early MAG breakdown relates to the cause of multiple sclerosis is a source of some speculation. Since membrane glycoproteins like MAG are known to be both receptors for some viruses and cell-surface antigens, MAG may play a key role in a viral or autoimmune reaction in this disease.

It is possible that a virus could alter the immune reactivity of MAG, so that it becomes a foreign antigen and subject to attack by the MS patient’s own immune system. One aspect of current research is to determine if the immune system of MS patients has been activated to react with MAG.

In a related investigation, evidence has been obtained that an enzyme which affects proteins, called a protease, is altering MAG, and that the enzyme’s activity is higher in MS tissue than in the normal brain.

Much research remains to be done before the impact of Drs. Quarles and Brady’s original work is known for the demyelinating disorders. “Obviously, we’re hoping for an abundant harvest,” says Dr. Brady.

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Two NCI Scientists Win Marriott Corp. Tennis Cup

Two National Cancer Institute scientists recently won the first annual Marriott Cup in the Men’s Doubles Division Tennis Tournament sponsored by the Marriott Corporation, and other Montgomery County businesses.

Drs. Andrew Arnold and Warner Greene of the Division of Cancer Biology and Diagnosis, Metabolism Branch, won the grand prize of a week’s vacation for two in Hilton Head Island, S.C.

Over 60 men’s doubles tennis teams entered the competition and have been in play-off matches since March in three separate tournaments. The games were held at the Gaithersburg Racquet Club in Gaithersburg, Md. To be eligible, players had to be employed by businesses located in Montgomery County and aged 25 or older.

Drs. Arnold and Greene defeated John Reinhard of the Montgomery County school system, and Russ Potts, Ph.D., a research biochemist from the Gillette Company, 6-1, 7-5, in the grand finals.

We are inclined to believe those whom we do not know, because they have never deceived us.—Samuel Johnson
FIC Scholars Elected NAS Foreign Associates

One current and one former Fogarty International Center scholar-in-residence program participants were among the 12 foreign scientists elected this year as foreign associates to the National Academy of Sciences in April.

Dr. Marianne Grunberg-Manago, director of research, CNRS, Paris, and professor at the Institute of Biology of the Rothschild Foundation, is now completing her last term as a scholar.

She is known for her work in molecular biology, and has been conducting research with the Laboratory of Biochemistry, NHLBI. Prior to her election, she organized an NIH conference on Translation/Transcriptional Regulation of Gene Expression.

Also honored by the American scientific community was Dr. Takashi Sugimura, director of the National Cancer Research Institute, Tokyo.

He was an FIC scholar from 1977 until 1979, and was also a visiting scientist with the National Cancer Institute from 1954 to 1959.

PHS-EEO Conference To Be Held June 27-30

The Public Health Service will begin its first PHS-wide Equal Employment Opportunity Conference at the Sheraton International Conference Center, Reston, Va., on June 27-30. Registration starts at 3 p.m. on Sunday, June 27.

The theme, EEO: Partnership for Progress, conveys both the goal and the process of the gathering to use a team approach to improve EEO program effectiveness.

Dr. Edward N. Brandt, Jr., Assistant Secretary for Health, will deliver the opening keynote address. Other prominent guest speakers include Francis P. Cotter, vice president of government affairs, domestic and international, Westinghouse Electric Corporation; and Dr. Mary Frances Berry, a member of the U.S. Commission on Civil Rights and former Assistant Secretary for Education, HEW.

Participants include senior executives, managers, supervisors, personnel staff, labor union representatives, EEO regional and headquarters staff, and representatives of advocacy groups. Strategies will be set for reaching specific goals and objectives in PHS to ensure continued EEO progress.

In addition to working sessions on EEO goal and strategy development, participants will attend special learning sessions to improve their EEO knowledge and skills.

Come Fly With Me!

A flight instructor will be the guest speaker at the Tuesday, June 10 meeting of the NIH Flying Club, which will start at 7:15 p.m. at the nearby FAES House. A fly-in to Ocean City will be discussed. For further information, contact Dr. Fred Bruner, 496-9223.

Karate To Begin This Month

The NIH Karate Club will hold its ninth 12-session beginner’s class in Tae Kwon Do karate on Monday evenings starting June 21. The basic classes are held from 6 to 7:30 p.m. at the old gymnasium at the Stone Ridge School.

Recently, 51 students with differing levels of training were promoted to higher degrees of karate proficiency. Dr. W. French Anderson, chief, Laboratory of Molecular Hematology, NHLBI, who is a second degree black belt, is the club's instructor.

The class fee is $35, and the fee for taking both the beginning judo and karate classes is $45. Application forms can be obtained from Dr. Anderson by calling 496-5844.

India's health care goals were discussed at a May meeting in the NIH Director's office between Drs. Sidhu (l), Wyngaarden (c), and Malone.

Long-Range Health Care Topic of Indian Minister's Visit

India’s health care goals were discussed at a May meeting in the NIH Director's office between Drs. Sidhu (l), Wyngaarden (c), and Malone.

Areas of mutual concern regarding health care and the World Health Organization’s goal of providing health care to all of the world’s populations by the year 2000 were discussed with key NIH staff and experts in international health during a recent day-long visit by India’s Secretary from the Ministry of Health and Family Welfare.

Dr. S. S. Sidhu met with NIH Director Dr. James B. Wyngaarden and spoke about his country’s recently announced 20-point program to improve human and economic development. Among its goals, he said, is the promotion of family welfare through voluntary compliance by means of a “people’s movement.”

Also mentioned, as part of the program, was the establishment of universal planned family health care that additionally includes the control and prevention of such diseases as blindness, leprosy, malaria and tuberculosis. A greater national emphasis on the health care of mothers and children is also planned, he said.

Dr. Sidhu was honored at a Stone House luncheon presided over by NIH Deputy Director Dr. Thomas E. Malone and included a variety of experts in international health care.

The luncheon was held after morning meetings with Dr. Claude Lenfant, FIC Director, and staffers from the National Institute of Allergy and Infectious Diseases. Later in the day, he toured the Clinical Center where he viewed heart surgery.

While at the CC, Dr. Sidhu answered questions from investigators from the National Institute of Child Health and Human Development. He concluded his NIH tour with a visit to the National Library of Medicine.

Dr. Sidhu plays an important role in U.S.-India health cooperation because his ministry approves most bilateral cooperative activities in health.

Dr. Sidhu has held his post since June 1981. Prior to his appointment, he was involved in planning and administration of steel production in India's Steel Production Authority. He is a member of the Indian Administrative Services and his formal training is in economics. Dr. Sidhu represented India at the 1982 World Health Assembly.

Although new to the health field, Dr. Sidhu has already demonstrated a thorough understanding of India’s health problems, and has a reputation as a versatile, hard working administrator.

June 18 Is Seminar Entry Deadline

Friday, June 18, is the deadline for receipt of nominations for the Grants Associates Seminar Series 1982-83. Those interested should forward their CV’s and statement of interest through their immediate supervisors to their BID Directors.

BID Directors are asked to forward no more than three nominations to the Grants Associates Office, Bldg. 31, Rm. 1B-55, by the deadline date.

For further information, contact A. Robert Polcari, 496-1736.

You shouldn't say it is not good. You should say you do not like it; and then, you know you're perfectly safe.—James M. Whistler
Perfect Score in Bridge Attained by NCI Administrator

The almost phantasmagoric world of bridge has attracted many people over the years. Some play bridge for several years and for a variety of reasons lay down their cards; others, like Dr. Clarice Reid, chief, Sickle Cell Disease Branch, NHLBI, have made it a life-long avocation. She has concentrated on what the game means to her and why so many people become adherents once they start winning.

Recently, she and her partner were reported, in Alan Truscott's bridge column in the New York Times, as achieving the rare distinction in tournament competition of running up a perfect bridge score and winning three titles over a weekend at the New York Statler Hilton.

To accomplish this, a player must win every event for which he or she enters. For two women to have a perfect tournament as partners is quite extraordinary; although the trend over the past 15 years has been to see increasingly more women seated around tournament tables.

Bridge, as most people who have ever tried to master it, is a complex game that challenges a person's ability to concentrate on the rapidly changing flow of cards—to remember each suit and number played, and to develop, with a partner, a winning strategy.

Has Life Master Ranking

Dr. Reid, now rated nationally as a life master, was introduced to the world of cards as a child in Birmingham, Ala. Her father, Noah Wills, now a retired school principal, and her mother encouraged their daughter and two sons to play a variety of cards games.

"I guess it was one way I found to compete with my brothers," noted Dr. Reid. Today, they also play tournament bridge and the game provides an opportunity for periodic family reunions.

"Every hand is a new challenge," says Dr. Reid, a graduate in pediatrics from the University of Cincinnati Medical School, who while attending her husband, Arthur, an attorney, to bridge. "He plays more now than I do," says Dr. Reid, noting that her husband is president of the American Bridge Association.

The ABA is principally a black group whereas the American Contract Bridge League has developed along social lines over the years as a predominantly white organization. The Reids hold memberships and play in both organizations.

What makes a good tournament bridge pair is a difficult question for Dr. Reid to answer. She says that her partner, Dorothy Sides, a Chicago educator, is her "best" female partner, although she has and does play regularly with different male bridge partners, including her husband.

"You have to be a tough competitor," says Dr. Reid, "and possess a curious and logical mind that wants to solve problems." In addition, she observed, a player must be thoroughly familiar and eloquent in the eloquence of the "language of cards" when bidding different hands. Partners must establish and operate within an agreed-upon system and be flexible to "improvise" when a deviation to game strategy occurs.

The game of bridge is further complicated because each team player must be able to initiate deceptive plays, and to analyze the "communication" in bidding announced by their opponents.

The Reids' love for bridge, as partners, is quite extraordinary; a kind of mystic to the game. For the Reids, a perfect relaxing weekend is one uninterrupted bridge, when the concerns of administering a national sickle cell disease program and a legal practice vanish with the flash of a newly dealt hand. The real fun comes for them after the cards have been put away and the tables folded up, when "you have a chance to get acquainted with new friends and to see old ones," says Dr. Reid.

These are just some of the bridge trophies won by Dr. Reid for her outstanding expertise in the game.

The will needs obstacles in order to exercise its power.—W. Somerset Maugham

Israeli Lectures on Cancer Given by Dr. R. C. Gallo

The first Otto Herz Memorial Lectureship in Cancer Research was delivered at Tel Aviv University last month by Dr. Robert C. Gallo, chief of the NCI Laboratory of Tumor Cell Biology.

The lectureship citation honors Dr. Gallo for "significant contributions to the understanding of malignant processes" and as a leading scientist in the fields of human tumor cell biology, leukemia and cancer virology.

The Herz lectureship commemorates the late philanthropist and long-time supporter of biological research, who was born in 1912.

Knew Biology's Future

Mr. Herz, a survivor of the concentration camps of Dachau and Buchenwald, was dedicated to furthering higher education in Israel and to strengthening Jewish-Christian relations. He supported various projects, including biotechnology to improve existing food supplies and to create new ones, and biological research to alleviate human suffering and disease.

Dr. Gallo spoke on T-cell Growth Factor and Control of T-cell Proliferation, Retroviruses as Causes of Leukemia and Lymphoma and as Tools for Identification of Transforming Genes, HTLV: Human Leukemia Virus, and Hematopoietic Cell Growth and Differentiation. He spoke on the same subjects at the Weizmann Institute of Science in Rehovoth and at the Hadassah Medical Center-Hebrew University in Jerusalem.

Purified TCGF Factor

One of the highlights of the work of Dr. Gallo and his colleagues has been the discovery and recent purification of a cell growth factor called TCGF. This factor allows scientists to grow normal and cancerous T-cell lymphocytes in culture.

Recently, using TCGF to culture human cancerous T-cells obtained from patients with adult T-cell lymphoma or leukemia, Dr. Gallo and his colleagues isolated a unique human RNA-type C virus, called human T-cell leukemia-lymphoma virus (HTLV).

This is the same class of virus known to cause leukemia in many species of animals. The virus was also isolated later by Japanese investigators from patients with this form of human adult T-cell cancer.

Scientists currently are investigating the properties and distribution of HTLV throughout the world, but especially in both Japanese and black Caribbean populations where a relatively high rate of infection has been found.

Dr. Gallo has long been recognized for his work in leukemia. In 1974, he received the first Dameshek Award for leukemia research from the American Society of Hematology, and in 1977, the first Ciba-Geigy Award for research in biomedical sciences.
Unconscious Bruxism Can Cause Serious Damage to Teeth, Gums

Millions of Americans involuntarily grind their teeth either during sleep, or unconsciously during waking hours. The harsh sound of teeth grating against each other and likened to someone walking up creaking stairs is the sound of bruxism.

Some bruxists take this irritating habit lightly thinking that it is as harmless as tapping fingers on a table. Unfortunately, this is not the case. Stressful grinding of teeth exerts thousands of pounds of pressure on the tooth surfaces severely damaging the teeth, as well as the gums and the jawbones.

Bruxism is a habit with a multitude of causes, signs, and symptoms, not all of which are apparent in every case. Psychological, local, systemic, and occupational factors are all implicated and even a hereditary background has been reported in some cases.

But how can the bruxism habit be more harmful than the pressures of biting and chewing? In chewing, food absorbs much of the shock of teeth coming together, and contacts during swallowing are not nearly as forceful as those in grinding. Normally, teeth have assigned positions that maintain a delicate pressure balance.

Bruxism can upset this balance by wearing down ridges of tooth enamel, and can also loosen or move teeth from their proper places. Excessive grinding and clenching may make facial muscles ache or tighten up suddenly with sharp pain, sometimes causing pain or clicking or cracking sounds in the sensitive temporomandibular joint that hinges the lower jaw to the skull.

Bruxism may also aggravate periodontal (gum) disease so that eventually the bone supporting the teeth is lost and teeth become wobbly and fall out.

Emotional tension is believed to be the most significant contributor to habitual grinding of the teeth. Children who feel rejected by playmates, teachers, or parents may develop bruxism.

Adults find that stress arising from job or home situations or inner tensions becomes manifest in teeth clenching or gnashing. Bruxism is frequently found in persons displaying other emotional characteristics, such as excessive fright, aggression, irritability, and nail biting.

Some bruxers unconsciously grind their teeth in attempts to establish a greater number of teeth in contact and to counteract local irritating situations such as missing, uneven, or poorly restored teeth. In children, the habit is often associated with the time of the transition from the deciduous (baby) teeth to the permanent teeth.

While most of the systemic factors which contribute to bruxism are difficult to assess, gastrointestinal disturbances, nutritional deficiencies, allergy or endocrine disturbances have all been reported as causative factors.

Some occupations appear to favor the development of the tooth-grinding habit. Athletes engaged in strenuous activities and concerned with producing maximum physical performances, persons engaged in meticulous and precise work, and workers under stress to meet deadlines and schedules are especially prone to this habit.

In treating the bruxism patient, dentists may grind down selected spots on some teeth, repair fillings or crowns, or even move the teeth to make them come together without obstructions. Night guards of soft plastic materials to absorb the shock of teeth grinding against each other may be recommended. In some instances, dentists or physicians may prescribe tension-relieving medication for temporary relief before other corrective measures are initiated.

Bruxism is a harmful habit that should be discussed with one's dentist. If the cause(s) of the habit can be determined and eliminated or corrected, the teeth can be saved from the destructive effects of habitual tooth grinding.

—Sally Wilberding

LEUKOTRIENES
(Continued from Page 1)

The mystery of leukotrienes began more than 40 years ago with the discovery of slow reacting substance (SRS), a material that was, in the interim, increasingly linked to compounds released by the body during allergic reactions.

Immediate allergic reactions occur when certain white blood cells (mast cells and basophils) release preformed quantities of histamines and other chemicals. These cells are found in large numbers in the blood and in tissues of the lungs, skin and the linings of the nose and intestinal tract.

As early as 1960 it had been shown that SRS was distinct from histamines, but technical limitations hampered identification of its source and chemical nature. By demonstrating a link between the ill-defined SRS and certain asthma symptoms not suppressed by antihistamines, Dr. Austen and his laboratory kept interest in the substance alive.

Contributed Definite Information

Beginning work in 1975, the St. Louis group contributed much of the definitive information that led to eventual characterization of the structure of SRS. Studies by the Harvard group and by investigators at the Johns Hopkins University had implicated basophils and mast cells in SRS production. On that lead, Dr. Parker and his colleague, Dr. Barbara Jakubshik, developed the rat basophilic leukemia (RBL) cell as a reliable single source for producing large quantities of SRS for research.

Next they used radiolabeling techniques to show that arachidonic acid (AA), a long chain fatty acid like SRS, was the starting point (precursor) for SRS production, then identified the metabolic pathway of AA that synthesizes SRS. (Recent studies in the NIAID laboratory of Dr. Michael Kaliner, chief of the allergic diseases section, have linked this same pathway of AA metabolism to mucous production in the lungs, another serious problem of asthma.)

In 1979, the chemical identity of SRS was at last established, based on corroborating data from several research groups. The final elucidation was made by Dr. Bengt Samuelsson of the Karolinska Institutet in Stockholm. He also bestowed the name leukotrienes: they develop from leukocytes and have three (tri) double chemical bonds (ene).

Once their structures were known, leukotrienes were purified and synthesized, providing even greater quantities for research. Now their potent role in airway constriction has been confirmed in human studies.

For the future, investigators are confident that what can be synthesized can be blocked. Several pharmaceutical companies are working to develop analogs of leukotrienes to interrupt the pathway of metabolism and relieve asthma sufferers of their wheezing and shortness of breath.

Dr. Parker, another NIAID grantee from Washington University School of Medicine, has been working independently on leukotriene research.

Visitng Scientist Program Participants

Sponsored by Fogarty International Center

5/7 Dr. Hisao Ueyama, Japan, Cell Genetics Section. Sponsor: Dr. Takeo Kakunaga, NCI, Bg. 37, Rm. 3E10.
5/7 Dr. A. Radha Krishna Murthy, India, Laboratory of Environmental Chemistry. Sponsor: Dr. Louis Levy, NIEHS, Research Triangle Park, N.C.
5/10 Dr. Carl-David Agardh, Sweden, Clinical and Cell Biology Section. Sponsor: Dr. Philip Gordon, NIAID, Bg. 10, Rm. 3E08.
5/10 Dr. Katsuhiko Yutani, Japan, Laboratory of Biochemical Pharmacology. Sponsor: Dr. Edith Miles, NIAID, Bg. 4, Rm. 109.
5/16 Dr. Antonio Argiolas, Italy, Laboratory of Chemistry, Sponsor: Dr. John Pisanio, NHLBI, Bg. 10, Rm. 7N262.
5/20 Dr. Masayoshi Iwaki, Japan, Laboratory of Neurochemistry. Sponsor: Dr. Seymour Kaufman, NIH, Bg. 36, Rm. 3D30.

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June 8, 1982
Drs. S. Carette, J. Cowdery To Receive Fellowship Awards

Drs. Simon Carette and John S. Cowdery of the Arthritis and Rheumatism Branch, National Institute of Arthritis, Metabolic Diseases, and Digestive and Kidney Diseases, will receive the Arthritis Foundation Senior Fellowship Awards during the VII Pan-American Congress of Rheumatology (PANLAR), currently being held in Washington, D.C. this week.

The awards are made to support individuals demonstrating outstanding competence in academic medicine, and who plan to pursue a program of advanced study in the rheumatic diseases. This study program may be clinically oriented, a laboratory investigation, or a combination of both.

Dr. Carette came to NIH as a guest worker in September 1981, sponsored by the Canadian Arthritis Society, in order to learn the methodology of clinical trials.

He received an M.D. degree from LaVal University in Quebec City in 1975, and then pursued an internship and 2-year residency in internal medicine at LaVal. This was followed by a third-year residency at McGill University in Montreal, Canada. He then spent the next 2 years at Wellesley Hospital in Toronto as a fellow in rheumatology.

Dr. Carette's work in the Arthritis and Rheumatism Branch has centered on the clinical aspects of systemic lupus erythematosus, particularly the expression of lupus nephritis. He has worked closely with Arthritis and Rheumatism Branch scientist Dr. John Klappe and is presenting three papers at the congress.

Dr. Carette is receiving the award for his work demonstrating the subgroup of patients with SLE and kidney disease which responds to immunosuppressive drugs.

Dr. Cowdery also is interested in lupus, but his emphasis is on animal models of the disease. Much of his work in the Arthritis Branch has been with the NZB mouse model of lupus, in collaboration with Dr. Alfred D. Steinberg. Dr. Cowdery has pursued studies of the ability of antibody to regulate primary immune response in both immune and normal mice.

Dr. Cowdery received his M.D. degree in 1978 from Emory University Medical School in Atlanta, Ga., and interned in general medicine at Emory University Hospitals the following year. He received a master of science degree in immunology from Emory in 1974, and his undergraduate degree was obtained from Duke University in Durham, N.C., in 1971.

At the congress, Dr. Cowdery will give a podium presentation of work done in collaboration with Dr. Steinberg. The work demonstrated the importance of IgM antibody in the regulation of immune responses to thymic independent antigens (these include certain nucleic acid antigens), and a defect in such regulation in autoimmune NZB and MRL mice.

Metal Tooth Implants Successful in Macaque Monkeys

About 70 percent of free-standing, metallic tooth implants have proved successful for up to 4-1/2 years in pig-tail macaque monkeys. The lining of the mouth developed normal cellular attachments to the implant and new bone grew into pores in the anchor or root portion of the implant.

This encouraging message from Dr. Allan Hamilton of the University of Washington, Seattle, was reported at the general session of the International Association for Dental Research meeting held recently in New Orleans.

Working with National Institute of Dental Research support, in cooperation with Dr. Richard E. Westerman of Battelle-Northwest in Richland, Wash., Dr. Hamilton found the same junctions (hemidesmosomes) and underlying layer of basal lamina between the cells in healed tissue and the titanium-aluminum-vanadium implants that are typical of similar cells adjoining natural teeth.

Bone Holds Implant

Previous research with similar implants in miniature swine had shown that normal bone would grow into interconnecting pores of an average diameter of 450 micrometers within the metal. This bone helped to hold the implant and developed when the fit between the anchor and its bony socket was very tight.

The monkey study showed the same type of normal bone ingrowth. Moreover, occasional inflammatory cells around the implants in both kinds of animals were the same in type and amount as those the microscope revealed in the vicinity of their natural teeth.

The metallic implant consists of a base portion that forms a cylindrical, porous anchor. Into this base a solid screw of the same metal is fitted while the wound heals. This screw prevents ingrowth of bone where it is unwanted.

When the investigators were ready to complete the implant, they uncovered the top of the base, replaced the screw with a threaded, slender, solid, metal core or post topped by a mushroom-shaped cap that served as a base for a crown similar to those used for humans.

The investigators obtained the best results when they extracted the tooth carefully, enlarged the socket to fits the anchor exactly, and then allowed the jaw to heal for about 3 months. After inserting a post and attaching a gold crown, the scientists did not support the implant by splinting but allowed it to receive the forces of chewing at once.

Previous research had shown that slender posts with flattened heads were more successful than thicker posts with more conical heads, and that placing crowns after the jaws had healed was better than inserting complete implants immediately after tooth extraction.

The investigators say that 59 of 70 posts with crowns implanted in healed anchors were successful. Of the 11 that did not last, 8 were in unhealthy animals or in sockets damaged by difficult extractions. Whereas when the investigators placed 13 complete implants in fresh extraction sites, 8 of them failed.

Stravinsky To Be Played in Masur

"Suite" (1919) from Stravinsky's L'Histoire du soldat will lead off the Contemporary Music Forum's free concert Thursday, June 10, at noon in the Masur Auditorium.

Thursday's free concert will celebrate R&W's sponsorship of the forum's six-concert series commencing in October.
Silent Muscle Periods Help Diagnose Dysfunction Causing Myofascial Pain

Chronic facial pain and limited jaw use may be a sign of myofascial pain dysfunction syndrome. MPD syndrome is a condition often accompanied by clicking sounds in the joint, muscle tenderness, jaw clenching or tooth grinding, and difficulty in opening the mouth or chewing.

Investigators have learned that such pain is often associated with muscle tension arising from a stressful situation. Measurement of silent periods in muscles used for chewing has proved useful in diagnosing MPD syndrome and in evaluating the results of therapy in affected patients. Similar to a knee jerk, the silent period is part of a normal reflex. It is a short interval in which normal electrical activity stops in a contracting muscle stops.

For chewing or swallowing, the silent period follows functional tooth contact. In MPD patients, this reflex was found to be altered in the muscles of mastication. The National Institute of Dental Research grantee Drs. Thomas J. Sikba and Daniel M. Sasaki at the Temporomandibular Joint and Facial Pain Research Center at the University of Illinois Medical Center examined the masticatory muscles (temporalis, masseter, lateral, and medial pterygoids) in two groups of patients.

The control group consisted of 20 normal adults (14 females and 6 males, aged 19 to 49). The experimental group consisted of 33 MPD patients (29 females and 4 males, aged 14 to 71). Using electrodes and an oscilloscope, the investigators recorded the length of the muscle silent periods. In the control group, each of the four muscles tested showed a relatively narrow range in length of their silent periods.

Most Symptoms Relieved

After a variety of treatments; however, including reassurance, drug therapy, use of an occlusal bite plate, psychological counseling, and biofeedback, most of these patients’ symptoms were relieved either completely or to a tolerable level and muscle silent periods returned to normal.

Only three of the patients treated showed no significant improvement in symptoms, or a reduction of muscle silent periods. Because most of the successful therapy used was unrelated to the dentition (teeth), the investigators believe that problems in the masticatory muscles, rather than in the dentition, are responsible for causing the MPD syndrome.

The investigators concluded that all MPD patients develop prolonged silent periods in one or more masticatory muscles; silent periods of the masseter and temporalis muscles are the only ones that need to be measured in order to verify the diagnosis and monitor the effects of treatment; a direct relationship exists between the severity of symptoms and the length of masticatory muscle silent periods; and, treatment can usually relieve MPD symptoms and restore the silent periods to normal lengths.

These findings were reported in the Mar. 1 issue of the Journal of Dental Research.

Dr. L. Phillips, NCI Researcher and EEO Leader, Dies

Dr. Leo A. Phillips, 51, NCI microbiologist and cancer researcher at the Frederick Cancer Research Facility, died recently of a heart attack.

Born in Nashville, Ark., Dr. Phillips received his B.S. in zoology from the University of Southern California in Los Angeles in 1954. In 1962, while working on his M.S. in microbiology at Arizona State University, he became a certified public health microbiologist (California) and certified by the American Board of Microbiology in pathogenic microbiology, immunology and serology.

After receiving his Ph.D. in microbiology from the University of Kansas in 1967, Dr. Phillips was awarded an NIH-NCI postdoctoral research fellowship in the molecular biophysics department of the Public Health Research Institute of the City of New York.

In 1969, he came to NCI as an NIH staff fellow and in 1973 became a research microbiologist in the Laboratory of Viral Carcinogenesis. Dr. Phillips led the molecular prophylaxis working group and contributed to knowledge of the structure, composition and molecular organization of the nucleic acids of oncogenic viruses and mammalian cells.

He was a fellow in the American Academy of Microbiology and was one of three official delegates to the XI International Cancer Congress in Buenos Aires in 1978. He also served as convener for sessions on retroviruses at each of the last six national meetings of the American Society for Microbiology.

Dr. Phillips pioneered the development of Equal Employment Opportunity (EEO) and affirmative action programs at both NIH and NCI and had recently received an NCI EEO Achievement Award.
Dr. Wanner, Safety Deputy Director, Will Retire to Kent Island This Month

Dr. Rudolf G. Wanner, deputy director of the Division of Safety, will retire June 25 after 25 years in U.S. Government service. Born in Germany, Dr. Wanner received his M.D. at the University of Tuebingen, and was a resident physician at the University of Frankfurt. His major areas of research have been in epidemiology and disease prevention.

He served as a civilian dermatologist for the U.S. Army in Frankfurt from 1949 to 1962 and spent the next 6 years as a government physician in Sumatra and Celebes.

In 1958, Dr. Wanner came to the United States and obtained a master's degree in public health and tropical medicine from Tulane University. He spent 1 year as a district health officer in Santa Fe, N. Mex., and then quickly found his way to the National Institutes of Health as a visiting scientist from 1962 to 1965.

He was also a project leader for epidemiologic studies at the Center for Disease Control Technology Branch in Phoenix, Ariz., where he eventually became the chief of the epidemiology unit.

In 1965, he was assigned to Oklahoma City as the medical officer of the Community Communicable Disease Demonstration Program of the State Aids Section. Two years later, Dr. Wanner became acting chief of the health service training unit in Atlanta, and subsequently the medical training officer for epidemiology training and hospital infections control of the Health Agencies Branch.

Dr. Wanner joined the NIH family in 1974 at the Division of Research Services as associate director for environmental health and safety. He served as the central manager and coordinator of various organizational components administering the NIH environmental protection, safety and occupational health programs. He was also the agency environmental officer for the direction and coordination of the National Environmental Policy Act.

As deputy director of the Division of Safety since December 1979, Dr. Wanner held responsibilities in the coordination of the environmental protection and safety program at NIH, and was also the executive officer of the division. He notes that he was the only medical officer in the division.

Dr. Wanner refers to himself as a "hands-on researcher," and is the author or coauthor of numerous papers in his field. He has also designed and conducted many training courses in epidemiology and disease prevention.

Throughout his career, he has traveled extensively for the Public Health Service and the World Health Organization on special major assignments. He has conducted courses in epidemiology of zoonoses in Buenos Aires, Argentina; was an epidemiology team leader in Bihar, India, during the intensified smallpox eradication program; and served in various WHO missions in Geneva, Switzerland, and at Dusseldorf and Berlin in Germany.

Dr. Wanner was also involved in the early formulative years of the recombinant DNA molecules research programs. He was a participant in the Asilomar Conference at California in 1975 where the guidelines were originally conceived.

Despite the extensive travels throughout his career, Dr. Wanner says he will now be content to sit in his sailboat off Kent Island, where he has taken up residence, and allow the winds to gently point his new direction in retirement.

Dr. Richard M. Krause Named 1982 Alumnus of the Year

Dr. Richard M. Krause, Director of the National Institute of Allergy and Infectious Diseases, was recently named 1982 Alumnus of the Year by Case-Western Reserve University, Cleveland.

Dr. Krause received his M.D. there and served as a research fellow in the department of preventive medicine. He spoke at their commencement exercises recently on advances in infectious disease research and physicians' responsibilities to patients.

In addition, Dr. Krause will speak June 10, at commencement exercises at Hahnemann Medical College in Philadelphia and will receive an honorary doctorate of science degree. On June 11, he will also receive an honorary doctor of law degree from Thomas Jefferson University Medical College.

Burn Association Award Given to Dr. Black

Dr. Emilie A. Black, assistant director for clinical research, National Institute of General Medical Sciences, received the Harvey Stuart Allen Distinguished Service Award of the American Burn Association on May 14 in Boston.

The medal was presented to her at the banquet of the 14th annual meeting of the association by Dr. John F. Burke, president of the American Burn Association.
The Federal Employee
(From the NIH Division of Personnel Management)

As employees of the HHS, we must all conform to high standards of ethical conduct. We are judged not only by our official actions and conduct, but also by our personal activities when they are work-related. The HHS and the NIH rely on us as its representatives to perform government business properly, to protect government interests, and to meet the high ethical standards of public service.

You, as a member of this team, are personally responsible for maintaining a high standard of honesty, integrity, impartiality, and conduct. You are required to be familiar with all rules of conduct and specific governing definitions, and to exercise informed judgment to avoid misconduct or conflicts of interest.

Courtesy, consideration, and promptness in dealing with the public must be shown in carrying out official responsibilities, and actions which deny the dignity of individuals or conduct which is disrespectful to others must be avoided. Of equal importance is the requirement that courtesy be shown in day-to-day interactions with coworkers.

You should avoid any action that might result in or create the appearance of:
• Using public office for private gain;
• Giving preferential treatment to any organization or person;
• Impeding government efficiency or economy; or
• Losing independence or impartiality of action.

In addition, you should avoid making any government decision outside official channels. Also, you should always be careful to avoid affecting adversely the confidence of the public and the integrity of the government.

You should always be conscious of your actions so as to avoid improperly using government funds, or engaging in wasteful actions or behavior in the performance of your assigned duties.

Avoid participating, while on government-owned or leased property or while on duty for the government, in any gambling activities, including the operation of a gambling device, in conducting a lottery or pool, in a game for money or property, or in selling or purchasing a number slip or ticket except at an authorized outlet.

The Standards of Conduct also forbid the following:
• Willful disclosure of individually identifiable information from records, the disclosure of which is prohibited by law;
• Failing to meet just financial obligations, thus reflecting adversely on the government as your employer; or
• Accepting directly or indirectly anything of monetary value including gifts, gratuities, favors, entertainment or loans from a person seeking to do business with the Government.

Our comments have included some of the more common actions to be avoided. It is important that you become familiar with all rules of conduct and specific provisions of law and regulations. If you do not have a copy of the Standards of Conduct, or if you have questions, contact your personnel office.

Race Videotape To Be Shown

A videotape of the 5th NIH Institute Challenge Relay will be shown on Wednesday, June 23, in the Masur Auditorium, from noon until 1 p.m. Everyone is invited.

Anyone with home videotape equipment who wishes to borrow a duplicate of the race for a private showing can contact Richard Wray, 496-4700.

Tennis Anyone?

The NIH Tennis Club is seeking team tennis players—singles or doubles—to play against other clubs in the area on Sunday mornings.

If interested, or for further information, call Herb Dorsey, 530-0378, after 5 p.m.

Chemical Toxicity Reports Available Free of Charge

The HHS National Toxicology Program recently announced the availability of its Chemical Toxicity Reports. These reports contain bioassays of C.I. Acid Red 14, a high volume dye; guar gum, a widely used food additive; tara gum, a plant product, and 1,2-dibromo-3-chloropropane (DBCP). Under the conditions of these bioassays the first three chemicals were not carcinogenic.

However, DBCP, once a widely used pesticide, caused cancer in both sexes of rats in this 103-week inhalation study. It produced nasal and tongue cancers in both sexes of rats: adenocarcinomas in female rats, and both nasal and lung cancers in male and female mice.

C.I. Acid Red 14 did not cause cancer in rats or mice of either sex in this 103-week feeding study. C.I. Acid Red 14 is used to color fabrics (such as nylon, silk, and wool) and other materials, including acetate, aluminum, cellulose, leather, paper, and wood.

C.I. Acid Red 14 was used in cosmetics and externally applied drugs until 1966 when approval was withdrawn. In 1978, an estimated 51,000 pounds were produced in the United States.

Guar gum, which is used in foods, cosmetics, pharmaceuticals, and manufactured products, did not cause cancer in rats or mice of either sex in this 103-week feeding study. Guar gum is used in beverages; breakfast cereals; cheese, ice cream, and other milk and imitation dairy products; pie fillings; processed meats and vegetables; salad dressings; sauces; and soups. It is also used in the manufacture of agriculture sprays, caking materials, dyes, enamels, inks, textiles, and porcelain.

A second plant product, tara gum, did not cause cancer in rats or mice of either sex during a 104-week feeding study.

Copies of these technical reports—Carcinogenesis Bioassay of 1,2-dibromo-3-chloropropane (T.R. 206), Carcinogenesis Bioassay of C.I. Acid Red 14 (T.R. 220), Carcinogenesis Bioassay of Guar Gum (T.R. 229), and Carcinogenesis Bioassay of Tara Gum (T.R. 224)—are available without charge by writing to the NTP public information office, M.B. 25-04, P.O. Box 12233, Research Triangle Park, N.C. 27709, or call (919) 541-3991, FTS, 629-3991.

Money is a good servant, but a bad master.—Old Proverb