

THE UNIVERSITY OF TEXAS M. D. ANDERSON HOSPITAL AND TUMOR INSTITUTE

NEWS LETTER

For the Physicians of Texas

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Unique Centrifuge Separates Blood

An experimental device that accepts blood from donors and separates certain components needed for treating cancer patients is now being used at MDAH. The physician working with the unit is Dr. Emil J Freireich, chief of the sec. of res. hematology and prof. of medicine.

The blood cell separator was developed jointly at the National Cancer Institute by Dr. Freireich, then on the NCI staff, and Mr. George T. Judson, an engineer and IBM Fellow. The International Business Machines Corporation constructed the device.

Dr. Freireich was the first physician to use the unit in vivo, i.e. receiving blood directly from a donor or patient, separating and removing certain elements, and returning the remaining blood to the donor. At MDAH, the separator will be used both in vivo and in vitro.

The separator accepts blood from a donor, spins it in a centrifuge, and separates it into three major components—plasma, erythrocytes (red cells), and leukocytes (white cells).

As whole blood is received from a donor, it is mixed with anticoagulant and pumped into a plastic bag from which it flows into the centrifuge. The spinning separates blood components according to their differing densities. Heavier components are forced toward the rim of the bowl while lighter elements, such as white cells, settle nearer the center.

The desired fraction is drawn off at intervals and collected; the remaining components are recombined and passed through a heater before being returned to the donor's vein.

Under normal circumstances, white cells are especially difficult to obtain. Even in the separator, the white cell fraction builds up slowly, since white cells comprise only about one per cent of normal blood.

The collection of white cells is impor



Dr. E. J. Freireich monitors controls of the IBM blood cell separator. In the background is [REDACTED], the patient whose blood is being drawn into the separator, centrifuged into red cells, white cells, and plasma, and returned to him minus the white cells.

tant to both clinical treatment and research. The cells from healthy individuals could be gathered and transfused into patients whose treatment had left their bodies devoid of these infection combatting agents. The use of the centrifuge with continuous flow action makes it possible to obtain from the blood of a single donor the granulocytes (a type of leukocyte) needed for one transfusion. Formerly, more than 30 normal donors were required to yield sufficient granulocytes for one transfusion.

Other applications of the device include removing excess white cells from patients who have too many and gathering platelets in about one sixth of the time required by the old method.

Safety features built into the blood cell separator include protection against air bubbles in the blood, blood clotting, collapse of a donor's vein, and low levels in the bottles supplying anticoagulant and intravenous solutions. Monitoring devices that detect such hazards set off warning signals, and the machine stops automatically if corrective measures are not taken. As an additional safeguard, no more than one pint of the donor's blood is outside his body at any time. This is the amount ordinarily given in a blood donation.

The experimental in vivo blood cell separator is one of the first instruments

Hereditary Melanoma

The genetic basis for the occurrence of malignant melanoma in certain kindreds has been clearly demonstrated in recent studies done by Dr. David Anderson, chief, sec. of human genetics, dept. of biology and prof. of biology.

Occurrence of this neoplasm was documented in 22 kindreds, including one in which the tumor developed in 15 individuals. Dr. Anderson concluded that the tumor apparently is inherited through the autosomes and not the sex chromosomes. The mode of inheritance involves dominance, but the pattern is not always a regular dominant.

Clinically, hereditary malignant melanoma is characterized by a significantly early age at first diagnosis. Equally significant is an increased frequency of multiple primary lesions. These findings are important to the early detection of the disease in relatives of those who have developed malignant melanoma.

This work is a part of MDAH's intensive study of the relationship between genetics and cancer (see *News Letter*, Vol. 12, No. 1, p. 5).

of its kind to be built by IBM. Other in vivo units have been installed at the National Cancer Institute, Roswell Park Memorial Institute in Buffalo, New York, the University of Washington in Seattle, Washington, and the Institut de Cancerologie et d'Immunogenetique in Paris, France.

French Trainee at MDAH

Mohinder Singh Nagi of Paris, France, recently completed a three-month instruction period at MDAH where he learned principles and techniques involved in the running of the blood cell separator. Mr. Nagi worked directly with Dr. Freireich.

Mr. Nagi will be in charge of a duplicate blood cell separator which was installed in May at the Institut de Cancerologie et d'Immunogenetique in Paris.

Science Park Proposed

Dr. R. Lee Clark, MDAH Director and Surgeon-in-Chief, has announced plans for a proposed science park for The University of Texas System which would be a unique combination of research, study, teaching, and recreational facilities, including all of the biomedical units in Texas.

The park, to be called the Buescher Science Park, would be located on 1,700 acres which were formerly part of the Buescher State Park near Smithville and were authorized by the recent Texas State Legislature and Governor Connally to be given to the university system. This program will be achieved in association with the Texas Parks and Wildlife Dept. under the direction of Mr. Will Odom and staff.

Among the benefits which the park is expected to provide are:

- A multi-purpose facility for specialized study in environmental health problems relating to cancer.
- Facilities to raise researchers' own experimental animals including primate and breeding colonies.
- Individual facilities for future development of a natural habitat for wild animals, natural science museum, geological, botanical, and wild flower gardens, an arboretum, planetarium, and water life program.
- A retreat-type area where researchers, students, and others could work and study.

Plans are now underway in association with The University of Texas School of Architecture, under the direction of Prof. Taniguchi, and Dr. Clark has expressed hopes to be "able to start an operational program and appropriate building in the early part of 1969."

New Officer

Dr. Margaret P. Sullivan, assoc. pediatrician, sec. of pediatrics, dept. of developmental therapeutics, and assoc. prof. of pediatrics at MDAH, was elected Secretary of the American Medical Women's Association at their recent meeting in Washington, D.C.

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The Book of Health Named A Major Reference Work

The second edition of *The Book of Health*, compiled and edited by two MDAH staff members, is listed as a major reference book in the recently published *The Random House Dictionary of the English Language*, published by Random House in New York City.

Compilers and editors of *The Book of Health* are R. Lee Clark and R. W. Cumley, who also collaborate on the annually published *Year Book of Cancer*. Dr. Clark, Director and Surgeon-in-Chief of MDAH, and Dr. Cumley, editor and head, department of publications, compiled the first edition of *The Book of Health* in 1953. The first edition contained 836 pages and hundreds of illustrations.

The second edition of *The Book of Health*, completely revised and brought up-to-date by the editors, was published in 1962 by D. van Nostrand Company, Inc., of Princeton, N. J. The book is an excellent encyclopedia of health and medicine for the educated lay reader. Common and uncommon diseases are

described in language understandable to the nonmedically trained person in order that he might acquire knowledge concerning the human body and its processes. The book describes the various signs and symptoms which indicate that a person should check with his family physician.

The Random House Dictionary has received many favorable reviews. The dictionary lists 874 major reference works in 42 principal categories. The second edition of *The Book of Health* is included among the 12 references on Health and Medical Arts.

Other special features of *The Random House Dictionary* are a full-color atlas of the world, a gazetteer of place names, a list of major dates in world history, and concise dictionaries of French, Spanish, German, and Italian.

Included in the volume are words and terms now used in all the new fields of knowledge—science, technology, medicine, and the arts.

Both *The Book of Health* and *The Random House Dictionary* are available through the book stores or from the publishers.

Japanese Visitor

Miss Toshito Tokutake, investigator for the Nagoya Family Court in Nagoya, Japan, recently visited in the MDAH volunteer services dept. as part of a tour of many U. S. hospital volunteer departments and juvenile and domestic courts.

The purpose of her visit to MDAH was to gather information on the role of volunteers in hospitals and the nature of volunteer workers.

The volunteer group at MDAH is different from those at most other hospitals in which organized women's groups, i.e., ladies auxiliaries, provide the services. At MDAH, a director of volunteer services is employed by the institution, and she is provided with a secretary. The director coordinates volunteer activities, handles all clerical and administrative matters, and participates as a member of the hospital's staff. Office and work space is provided in the hospital building for the volunteers.

Although volunteer hospital services originated in Paris, France, in the 1860's, such services are now almost exclusively an American practice. In Japan, a number of medical centers are now being constructed. Also, greater industrialization is providing Japanese women with increased leisure time. Therefore, Miss Tokutake believes that hospital volunteer services in Japan will be prevalent.

MDAH volunteers, directed by Miss



Miss Marie Gay, director of volunteer services, explains the packing of gauze for outpatient use, a service which the MDAH volunteers perform for central sterile supply, to Toshito Tokutake. Shown left to right are: Mrs. W. R. Hern, Mrs. Gerald N. Braley, Miss Tokutake, and Miss Gay.

Marie Gay, provide assistance in many areas of the hospital to release professional personnel from nonprofessional aspects of their work. Volunteers work in the departments of appointments and admissions, publications, medical communications, medical records, pathology, and nursing. Volunteers also assist in the Blood Bank, outpatient clinic, the Webster Street Annex, and the pediatrics ward.

In addition, the volunteers maintain a small shop where magazines, newspapers, candy, and cigarettes are sold.

Clinical Conference

The 11th Annual Clinical Conference on "Cancer of the Uterus and Ovary" is summarized in detail to convey a more complete account of the newest innovations in diagnosis and treatment for patients with cancer of the uterus and ovary.

Dr. Felix N. Rutledge, chief, sec. of gynecology and prof. of gynecology at MDAH, was chairman of the two-day conference. Co-chairman was Dr. Gilbert H. Fletcher, head, dept. of radiotherapy and prof. of radiotherapy at MDAH. Dr. R. Lee Clark, MDAH Director and Surgeon-in-Chief, gave the introduction to the conference. In stressing the importance of gynecological cancer, he pointed out that this was the second time the clinical conference has been on that subject. Six years previously, at the Fifth Annual Clinical Conference, the subject was "Carcinoma of the Uterine Cervix, Endometrium and Ovary."



Dr. Gilbert H. Fletcher (left), head, dept. of radiotherapy and prof. of radiotherapy, and Dr. Felix N. Rutledge, chief, sec. of gynecology and prof. of gynecology, were co-chairmen of the 11th Annual Clinical Conference.



During the most recent conference, Dr. Richard C. Boronow, now asst. prof. of obstetrics and gynecology, Northwestern University Medical

School, and formerly a fellow at MDAH, spoke on "Treatment at M. D. Anderson Hospital," with respect to stage of adenocarcinoma of the endometrium. He outlined the rationale which helped establish the institution's current treatment policy of radium, external radiation therapy, and total hysterectomy for management of this type of cancer.

Dr. Boronow also presented a paper

entitled "Corpus et Collum." In this paper, he reported that there is a convincing argument for using preoperative radiation in the management of endometrial adenocarcinoma. The evidence, a review of 400 cases of endometrial adenocarcinoma treated at MDAH, showed that the absolute five-year survival rate for stage I cases was 77%, stage II 60%, stage III 18%, and stage IV 0%.



Dr. Luis Dalclos, assoc. radiotherapist and assoc. prof. of radiotherapy at MDAH, spoke on "Malignant Tumors of the Endometrium: Evaluation of Some Aspects of Radiotherapy." His evaluation was based on survival rates and effectiveness of local and pelvic control in 344 patients with malignant endometrial tumors. He concluded that the Heyman packing technique produces maximum tumor sterilization in the uterus, that irradiation of the vaginal vault by radium only reduced the incidence of vaginal recurrences, and that, in specific instances, external irradiation plays an important function in radiation therapy.



Dr. Julian P. Smith, asst. gynecologist at MDAH, spoke on "Hormone Therapy for Adenocarcinoma of the Endometrium." He studied 65 patients with recurrent or disseminated endometrial adenocarcinoma who had been treated with a progestin and were not suitable for further conventional therapy. Hormone therapy was started; 40 patients received medroxyprogesterone acetate parenterally, and 25 received medrogestone orally. Dr. Smith found that younger patients responded better to therapy. Tumor volume decreased 50% for three or more months in 24 patients, and 45 patients had excellent subjective responses for three or more months.

Dr. Smith also presented papers on "G.I. Tract Complications of Carcinoma of the Cervix" and "Regional Chemotherapy for Carcinoma of the Cervix." In the latter presentation, he reported that infusion of chemotherapeutic agents for pelvic cancers may (1) provide short-term relief of pain, (2) cause significant regression of pelvic can-

cer although it may grow rapidly after infusion is discontinued, and (3) may produce, with concomitant radiotherapy, complete regression of a large pelvic cancer; some such responses have been prolonged.



treatment followed by total hysterectomy and bilateral salpingo-oophorectomy seems to be the most promising method for managing these tumors.



"The Value of Preoperative Irradiation in Carcinoma of the Corpus," was discussed by Dr. John McLean Morris, department of obstetrics and gynecology, Yale University School of Medicine. In 265 patients with endometrial cancer, factors influencing prognosis were found to be age, histologic grade, and anatomic extent of disease. Uterine size did not seem to be significant.



Dr. H. L. Kottmeier, director, department of gynecology, Radiumhemmet, Karolinska Institute, Stockholm, Sweden, spoke on "Individualization of Therapy in Carcinoma of the Corpus." According to Dr. Kottmeier, before applying definitive therapy, it is important to recognize the patient's condition, anatomical extent of disease, uterine size, and the histologic pattern. For the best chance for cure, a pelvic surgeon, radiotherapist, and pathologist should work together.



Dr. Hugh R. K. Barber, director, obstetrics and gynecology, Lenox Hill Hospital, New York City, discussed "Treatment of Recurrent Corpus Cancer by Anterior and Total Pelvic Exenteration at the

(Clinical Conference, continued on page 4)

(Clinical Conference, continued from page 3)

Memorial-James Ewing Hospitals, 1947 through 1963." Dr. Barber reported on 36 patients treated five or more years ago; 75% died during the first year after therapy. Five survived five or more years, three dying from renal complications. Age was not a significant factor.



Dr. H. Stephen Gallagher, a s s o c. pathologist and assoc. prof. of pathology at MDAH, discussed "Histopathologic changes in Ovarian Carcinoma Following Therapy with Phenyl-

alanine Mustard." He studied 39 patients with clinical or surgical evidence of residual disease following surgical treatment. After L-sarcosin therapy, the presence of histologically demonstrable neoplasia is considered an unfavorable prognostic sign.



Fernando G. Bloedorn



Louis Mould

Dr. Fernando G. Bloedorn, head, division of radiotherapy, University of Maryland Hospital, Baltimore, and Dr. Louis Mould, head, Oncology Clinic, department of obstetrics and gynecology, Memorial Hospital, Cumberland, Maryland, spoke on "Trends in Cooperative Management of Cancer of the Cervix." They discussed the University of Maryland's system for bringing specialists into closer contact with the

general practitioners, and for bringing patients to both. The system is organized at five levels: (1) referring physicians; (2) private gynecologists who treat cancer patients and who consult with specialists at the University of Maryland about individual staging and treatment; (3) consultations done either by telephone or referral; (4) hospital clinics in Baltimore or other communities that are subsidiary branches of the university's division of radiotherapy; and (5) peripheral clinics, where the gynecologist or radiologist in charge is supervised by a consulting radiotherapist. Dr. Bloedorn is convinced that this system is

reaching patients who otherwise might not be seen.



"Computer Dosimetry of Radium Dosage to Pelvic Lymph Nodes" was discussed by Dr. Fred Y. Durrance, assistant in radiotherapy at MDAH, who reviewed 100 radium implants in patients with cervical carcinoma. Dr. Durrance said that the recent development at MDAH of a computer program for calculating isodose curves around radium sources has made possible evaluation of dose distribution in planes around any array of radium sources.

Dr. Rutledge gave a paper entitled "Combination Irradiation and Surgery." From a study of 195 patients who had hysterectomy following irradiation therapy for cervical cancer, Dr. Rutledge concluded that the merits of combination therapy are still equivocal. "A lack of a clear-cut superiority for combination therapy at this point deters us from recommending that it be adopted until the effectiveness has been established," he said.

Dr. Durrance also presented a paper on "Treatment of Carcinoma of the Cervix Following Inadequate Surgery" in which he reviewed the cases of 123 patients with cervical carcinoma given radiotherapy following hysterectomy. Patients with early cervical carcinoma having immediate postoperative radiotherapy after hysterectomy have excellent survival rates. Patients with residual disease after surgery may be salvaged by external pelvic irradiation followed by local therapy to the vaginal apex; however, if clinically evident recurrent disease develops, the survival rate is poor. Subtotal hysterectomy, if performed when cancer is present, has been associated with an ultimately fatal prognosis. Known metastatic cancer in pelvic-wall lymph nodes can be controlled with moderate doses of external irradiation.



Dr. R. Vernon Colpitts, clin. ass. gynecologist at MDAH. Of 4,215 patients with cervical cancer, 178 had late recur-

rences after initial treatment. The intervals between treatment and recurrence varied from two to more than 10 years, but age at recurrence was usually between 55 and 57 years. Adequate use of radium and supervoltage therapy should eliminate disease from the pelvis, according to this study.

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In a second paper, Dr. Kottmeier discussed "Evaluation of Treatment for Recurrence after Surgery and Radiotherapy for Carcinoma of the Cervix." His study of 3,841 patients included 303 patients with recurrent disease. After treatment, 91 of the 303 patients were symptom-free for five or more years. "Recurrences appearing in areas that have previously been exposed to large doses of radiation should be treated by radical surgery or extensive fulguration," Dr. Kottmeier said.

Dr. Kottmeier also presented the Guy H. Heath and Dan C. Heath Memorial Lecture (see *News Letter*, 12:1, April 1967). For this, his topic was "Problems Relating to Classification and Stage Grouping of Malignant Tumors in the Pelvis."

Dr. Barber discussed "Recurrent Cancer of the Cervix Treated by Pelvic Exenteration." Of the 267 patients included in his study, 16.9% lived five or more years. "The principle that once radiation has failed there is no further treatment affording cure must be abandoned," said Dr. Barber.



"Palliation with Radiogold Grains for Postradiation Recurrences" was discussed by Dr. Lowell S. Miller, a s s o c. radiotherapist and assoc. prof. of radiotherapy at MDAH. A study of 18 women

who had radioactive gold grains implanted for noncentral pelvic recurrence of squamous carcinomas of the uterine cervix showed that in selected patients, doses of 7,000 to 10,000 rads seem a useful alternate to narcotics, chemotherapy, and pain-relieving neurosurgical procedures. Median survival was 8.2 months.

Dr. Delclos's second paper was on "Analysis of 19 Cases of Low Vaginal Metastases in Previously Treated Patients with Carcinoma of the Cervix or Cervical Stump." These patients represent 0.75% of the 2,528 patients treated at MDAH for carcinoma of the cervix or cervical stump. In this group,

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(Clinical Conference, continued from page 4) all vaginal lesions were controlled, with the patients dying of pelvic disease, distant metastasis, or intercurrent disease. "Treatment of Distant Metastases from Squamous Cell Carcinoma of the Uterine Cervix" was also presented by Dr. Delclos. The paper outlined the principles of treatment of more than 100 patients and recommended megavoltage techniques for therapy of different anatomical metastatic sites from squamous cell carcinoma of the uterine cervix.



Dr. Beaury C. Burns, Jr., assoc. gynecologist and asst. prof. of gynecology at MDAH, presented two papers at the conference. In the first paper, he reviewed carcinoma of the

ovary at MDAH. In the second, entitled "Management of Urinary Tract Complications of Treatment for Carcinoma of the Uterine Cervix," Dr. Burns discussed treatment for complications caused by radiotherapy, surgical therapy, or a combination of the two at MDAH.

Dr. Dean J. Candis, clin. asst. gynecologist at MDAH, spoke on special



Dr. Fletcher, co-chairman of the conference, gave a paper entitled "Shifts in Interest in Radiotherapy," in which he discussed seven aspects: (1) substaging, within the International Staging (TNM) system, for more accurate prognosis and better treatment planning; (2) analysis of sites of failures; (3) significance of regression rate and "viable cells"; (4) tolerance to external irradiation; (5) extension of node coverage with external irradiation; (6) hyperbaric oxygen; and (7) technique of clinical trial.

Included in the meeting's agenda were three discussions on the subjects of carcinoma of the corpus, carcinoma of the ovary, and carcinoma of the cervix. In addition, a formal panel discussion on "Clinical Staging" was presented.

The proceedings of the conference are to be published as a monograph entitled *Cancer of the Uterus and Ovary*.

The 1965 monograph, *Cancer of the Gastrointestinal Tract*, was published by Year Book Medical Publishers, Inc., of Chicago.

of biostatistics and computer sciences, dept. of biomathematics. He received the B.A., M.S., and Ph.D. degrees from Texas A. & M. University, College Station, Texas. Prior to joining the MDAH staff, he was associated with Texas A. & M. University as asst. prof. of statistics.

Richard L. Soehner has been appointed asst. virologist, dept. of virology. He received the B.A. degree from Centre College of Kentucky, Danville, and the M.S. and Ph.D. degrees from the University of Mississippi Medical School in Jackson. Prior to joining the MDAH staff, Dr. Soehner was associated with the McArdle Laboratory at the University of Wisconsin where he held a National Institutes of Health Fellowship.

Rutledge is Officer

Dr. Felix N. Rutledge, gynecologist, chief, sec. of gynecology, dept. of surgery, and prof. of gynecology at MDAH, recently was elected vice president of the Texas Association of Obstetricians and Gynecologists.

New officers of the association were elected during the meeting March 4, 1967, at The University of Texas Medical Branch in Galveston.

gynecological tumors. He discussed in detail arrhenoblastoma, ovarian mesonephroma, dysgerminomas, and feminizing mesenchymomas.

Staff Member Honored

Dr. Robert D. Moreton, MDAH asst. director and vice-president of The University Cancer Foundation, received the 17th annual brotherhood award from the National Conference of Christians and Jews.

He was presented the award at the annual dinner of the local chapter of the organization in Fort Worth on March 27, 1967. Sen. John Tower was guest speaker at the banquet.

The citation is presented annually to a citizen chosen on recommendation of the chapter's executive committee for service to his community.

From 1950 to 1965, Dr. Moreton was consultant radiologist at the St. Joseph and Peter Smith Hospitals in Fort Worth. He was director, dept. of radiology at Harris Hospital in Fort Worth. He was chairman and founding partner of the Bond Radiological Group in Fort Worth and clin. prof. of radiology at The University of Texas Southwestern Medical School in Dallas.

Dr. Moreton has been secretary of the Texas Medical Association and president of the Tarrant County Medical Society. He has served as president of the Radiological Society of North America and of the Southern Medical Association, vice-chairman of the Texas State Board of Health, and alternate delegate for radiology to the American Medical Association. He was a founding member of the board of the Carter Blood Center in Fort Worth and of the Radiation-Research Foundation of the Southwest.

A native of Brookhaven, Mississippi, Dr. Moreton received his M.D. degree from the University of Tennessee in 1938. He served his internship at Lloyd Noland Memorial Hospital in Fairfield, Alabama, and received a fellowship in radiology to the Mayo Clinic.

Art Exhibit

A collection of art works by the students at the main university in Austin has been loaned to MDAH. The display is on exhibition in the hospital's pediatrics wing. It was arranged by [redacted] whose son, [redacted] has been an MDAH patient.

The exhibit, which will be rotated every three months, is dedicated to the children, doctors, and nurses in the hospital. According to [redacted], "The art collection is intended to make the children's stays more cheerful and to remind the doctors and nurses of the deep appreciation of the people of Texas for the splendid work of this famed cancer hospital."

New Staff

New staff members at MDAH include the following:

Arthur Frank Barrett has been appointed clin. assoc. radiologist (part-time), dept. of diag. radiology. Dr. Barrett received the M.B.B.S. degree from London Hospital Medical College (London University), London, England. He also is associated with the Heights Hospital in Houston as a staff radiologist.

Mrs. Jane H. Brandenberger has accepted the position of information coordinator. She received her B.A. degree at Trinity University, San Antonio, Texas, and her M.J. at The University of Texas in Austin. Mrs. Brandenberger has served as media coordinator for the Greater Houston Action for Youth Program and also as public relations associate for the Harris County United Fund. Since 1963, Mrs. Brandenberger has been public relations director of the Houston YMCA.

Lyle D. Broemeling has joined the MDAH staff as asst. biostatistician, sec.

Grants for Research

MDAH staff members have received several awards and grants in support of research activities.

The U. S. Public Health Service awarded grants to the following MDAH staff members:

Dr. Gilbert H. Fletcher, radiologist and head of the dept. of radiology, received an award for a project to plan a minimum 25 Mev linear accelerator. This grant will provide funds for a consultant firm to develop specifications for a linear accelerator designed for MDAH's needs.

Dr. John A. Shively, pathologist and chief of the sec. of clin. pathology, and **Dr. Emil J. Freireich**, internist and chief of the sec. of res. hematology, received a grant to study the physiology of platelets and their role in therapy and to evaluate and develop better methods for use in the preparation and transfusion of platelets.

Dr. Walter J. Burdette, assoc. director (research), received an award for a study of oncogenic viruses, chromosomal aberrations, and mutations. In this study, the polytene salivary chromosomes, tumor stocks, and methods of genetic analysis possible in *Drosophila* will be utilized to analyze the effects of oncogenic viruses on chromosomes. Working with Dr. Burdette will be **Dr. J. S. Yoon** and **Dr. Debdas Mukerjee**, asst. biologist.

Dr. Emil Frei, III, assoc. director (clin. research) and head, dept. of developmental therapeutics, received a grant to support the 21st annual symposium on fundamental cancer research. The symposium, entitled "The Proliferation and Spread of Neoplastic Cells," was held on February 27, 28, and March 1, 1967.

Other Awards

Dr. Joseph R. Shaeffer, asst. physicist, dept. of physics, received a National Science Foundation grant for study on terminal stages in biosynthesis of the hemoglobin molecule. He will investigate the terminal stages of the biosynthesis of the hemoglobin molecule and the biochemical control mechanisms involved.

Dr. Richard L. Soehner, asst. virologist, dept. of virology, received a Leukemia Society fellowship. His proposed study will be directed toward elucidation of the role of leukemia and other viruses as causative agents of different sarcomata and other solid tumors that develop in rodents after inoculation with

murine leukemia viruses.

Dr. Max Schlamowitz, assoc. biologist, sec. of immunology, received a grant from the Welch Foundation to study the immunochemistry and chemistry of glycoproteins. In this study, Dr. Schlamowitz will investigate the carbohydrate component of the glycoprotein from egg white from three animal species to assess its role in the demarcation of species at the molecular level.

Eagle Presented Bertner Award

Dr. Harry Eagle, professor and chairman of the department of cell biology at the Albert Einstein College of Medicine, received the Seventeenth Annual Bertner Foundation Award for his contributions to cellular biology. The award was given at MDAH's 21st Symposium on Fundamental Cancer Research.

The Bertner Award is presented to a scientist who has made outstanding contributions to cancer research. Dr. Eagle's investigations have provided valuable and necessary information on cultured cells and their interactions.



Dr. Harry Eagle (left) accepts the seventeenth annual Bertner Foundation Award from Dr. Murray M. Copeland, MDAH associate director (education).

Dr. Eagle's early studies on growth requirements of cultured cells are basic to laboratory research involving tissue culture. His later studies on factors controlling metabolic activity in cultured mammalian cells are significant for scientists seeking an understanding of metabolic regulation in the whole animal or in man. His recent work on the interaction between normal and neoplastic cells has provided a model which is used by many investigators in cancer research.

Dr. Eagle's topic for the Bertner Foundation Lecture was "The Interaction of Normal, Aneuploid, and Malignant Cells in Culture."

Bertner Winners Receive Nobel Prize

Two previous Bertner Foundation awardees, **Dr. Charles Huggins** and **Dr. F. Peyton Rous**, were honored with the 1966 Nobel Prize in Medicine and Physiology for the same work for which they received the Bertner Foundation Awards in 1953 and 1954, respectively.

Other awardees have been **Dr. Fred W. Stewart**, the late **Dr. George M. Smith**, the late **Dr. George N. Papanicolaou**, **Dr. Joseph C. Aub**, **Dr. John J. Bittner**, **Dr. Jacob Furth**, **Dr. Richard E. Shope**, **Dr. E. V. Cowdry**, **Dr. Van Rensselaer Potter**, **Dr. George D. Snell**, **Dr. Ludwik Gross**, the late **Dr. Louis H. Gray**, **Dr. Erwin Chargaff**, and **Dr. A'exander Haddow**.

MDAH Staff Members Attend Rehabilitation Conference

The first of three annual conferences on rehabilitation of cancer patients was held February 12-15, 1967, at Princeton, New Jersey. This symposium is sponsored by the Interdisciplinary Communications Programs Division of the New York Academy of Sciences.

The subject of this first conference was rehabilitation of patients with head and neck cancer. The subjects of the next two conferences will be rehabilitation of patients with cancers of the extremities and patients with pelvic cancer.

A monograph of each annual conference will be published. **Dr. John Healey**, chief, sec. of exp. surgery, and chief, sec. of physical medicine and rehabilitation at MDAH, is editing the proceedings of the past conference.

MDAH asst. director, **Dr. Robert D. Moreton**, spoke at the opening session and was chairman of the meeting.

During the three-day conference, participants discussed management of patients with head and neck cancer, current methods and problems in rehabilitation of such patients, and the potential and possibilities in future rehabilitation of these patients.

Dr. William S. MacComb, MDAH chief, sec. of head and neck surgery, was a session leader, as were **Dr. Milton Edgerton**, dept. of plastic surgery, Johns Hopkins Hospital; and **Dr. Philip Klieger**, dept. of health, education and welfare, Vocational Rehabilitation Administration.

Other MDAH staff members participating in the conference were **Miss Renilda Hilkemeyer**, director of nursing; **Dr. William J. Hills**, senior fellow in surgery; **Dr. Joe Drane**, clin. assoc. prosthodontist; and **Mrs. Dorothy Compton**, res. assistant.

Blood Bank

The MDAH Blood Bank is one of the most vital components of the hospital's total patient care program. Blood is particularly precious for a debilitated patient with cancer. In the Blood Bank, whole blood is collected, processed, and stored; plasma and platelets also are gathered for use in treatment of leukemia patients who have thrombocytopenia resulting from chemotherapy. Each unit of blood is cross-matched with the individual patient's blood before being released for transfusion.

The Blood Bank was established as an integral part of the hospital's activities in 1953. As in most blood banks, blood is not sold, but is "loaned" to patients. The patients' families and friends are encouraged to replace the blood, ensuring an adequate supply for all patients.

Each month, about 400 units of blood are collected by the MDAH Blood Bank. Of this, 30% is donated by relatives and friends of patients, and 5% by employees of MDAH.

Approximately 25% of the platelet donors are hospital employees. The platelets are obtained by plasmapheresis. To obtain the 600 units of blood platelets needed, 300 appointments are required, two units being obtained from each donor.

Of the six donor beds maintained in the Blood Bank, two are reserved for the plasmapheresis program. Plasmapheresis, the method of removing the platelet-containing plasma from a unit of blood and returning the red cells to the donor, has progressed from a research procedure to one which may be performed in any blood bank.

The technique can be used to provide large quantities of normal plasma, fresh frozen plasma containing antihemophilic globulin, plasma for fractionation into immune globulin, albumin, etc., and platelets for transfusions. Also, plasmapheresis may be used as a therapeutic procedure to remove large quantities of plasma protein macroglobulins from patients with macroglobulinemia.

Dr. John A. Shively, chief, sec. of clin. pathology, is director of the Blood Bank. He is assisted by Miss Doris Fowler and Miss Norma Lyons, who are registered blood bank technologists, ASCP(BB).

Dr. Shively is president-elect of the American Association of Blood Banks. He will become president at the annual meeting of the organization in October.

Report Published

The 1966 Annual Report of the research clinical pathology program in cancer was published in January 1967. The program, which is organized into the three sections of biochemistry, hematology/immunology, and microbiology, is under the direction of Dr. William O. Russell, head, dept. of pathology, and prof. of pathology.

The aim of the program, which was established in 1963, is to accelerate clinical application of the findings of the basic as well as the medical sciences. At the time of its initiation, the research clinical pathology program was the first of its kind to be instituted with the support of the Public Health Service. Support for the program has been allocated to continue through 1968.

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