Clinical Studies on Psoralen

When vitiligo patients using psoralen compounds showed increased protection against sunburn, the hypothesis was proposed that these drugs might have a prophylactic effect against skin cancer.

Surveys based on cancer registries indicate that skin cancers are more prevalent on exposed areas of the head, neck, and hands of fair-skinned individuals who live in high, dry, and sunny climates. The highest incidence of skin cancer in the world occurs among the populations of Texas and Australia.

The first clinical study to test psoralen compounds (June, 1957, to June, 1959) was made in a Texas county which had 1,500 patients with multiple skin cancers. The second trial was made in Sydney, Australia (October, 1958, to September, 1960).

Patients had at least two histologically verified skin cancers or keratoses on exposed skin areas when the study began. In the double-blind, controlled trials, an oral dose of 8-methoxypsoralen (20 mg. daily) was given to half the patients, an inert pill to the control group. Initially, lesions were photographed and skin color readings were made on reflectance meters. At 3-month intervals, examinations, follow-up interviews, and photographs were again made and the drug supply was renewed.

In the Texas study, 61% of the patients who were taking psoralen had new lesions within 18 months; 63% of the control group had new lesions. Since there was no important reaction difference between the two groups, the conclusion regarding the preventive effect of psoralen against skin cancer was negative.

Collateral information about sunburn and tanning was obtained from the study. The relationship between solar exposure and skin cancer induction was confirmed. Side effects of psoralen dosage were minimal; effective dose level and patient adherence to the program were confirmed.

Research Appointment Announced

Robert C. Hickey, M.D., has been appointed Associate Director for Research at MDAH.

In announcing the approval of Dr. Hickey's appointment by The University of Texas Board of Regents, R. Lee Clark, M.D., Director and Surgeon-in-Chief of MDAH, stated: "Dr. Hickey's accomplishments as the Associate Dean of Research at the State University of Iowa College of Medicine since July, 1959, have demonstrated that he is an unusually able administrator. His clinical research and teaching have been outstanding and his contributions to surgery many."

Dr. Hickey received the B.S. degree from Cornell University in 1938, and the M.D. degree from Cornell University Medical College in 1942. After his internship at the University Hospitals, State University of Iowa, he spent 3 years as lieutenant in the Medical Corps, U.S. Naval Reserve. Two years (Appointment, continued on page 2)
Symposium Chairman Appointed

Leon L. Dmochowski, chairman of the Seventeenth Annual Symposium on Fundamental Cancer Research, received M.B. and Ch.B. degrees from the University of Lwow, Poland, and an M.D. degree with distinction from the University of Warsaw. He obtained his Ph.D. from the University of Leeds, and is a licensed medical practitioner in England.

Before his appointment as chief of the section of virology and electron microscopy at MDAH, Dr. Dmochowski was lecturer in experimental pathology and cancer research and then reader (research professor) in cancer research at the School of Medicine, University of Leeds; visiting associate professor of microbiology, College of Physicians and Surgeons, Columbia University; and professor of anatomy, Baylor University College of Medicine. He is clinical professor of microbiology, Baylor University College of Medicine, and professor of experimental pathology at The University of Texas Postgraduate School of Medicine.

Dr. Dmochowski has published over 160 papers on immunology and serology, endocrinology, tumor-inducing viruses, genetics, and electron microscopy. These have appeared in leading scientific journals.

Symposium Program Announced

"Viruses, Nucleic Acids, and Cancer" will be the subject of the Seventeenth Annual Symposium on Fundamental Cancer Research sponsored by MDAH. Leon Dmochowski, chairman of the Symposium Committee, has announced the meeting, to be held February 20, 21, and 22, 1963, in the Shamrock-Hilton Hotel. Session titles and chairmen are:

Session I, part 1, The Structure of Viruses. Chairman: R. C. Williams of the University of California at Berkeley, who has contributed to our knowledge of the structure of viruses.


Session II, part 1, Replication of Viruses: Biochemistry of Virus-Infected Cells. Chairman: H. L. Fraenkel-Conrat of the University of California at Berkeley, who first demonstrated the infectivity of viral nucleic acid.

Session II, part 2, Replication of Viruses: Biochemistry of Virus-Infected Cells. Chairman: J. L. Melnick of Baylor University College of Medicine, known for his work on enteroviruses.

Session III, part 1, Viral Nucleic Acid: Properties and Mode of Replication. Chairman: W. M. Stanley of the University of California at Berkeley, Nobel Prize Winner.

Session III, part 2, Viral Nucleic Acid: Early Changes Following Virus
Grants Support MDAH Research and Education

Research projects and scientific education at MDAH have received support from nineteen new grants totaling $345,627.

The National Cancer Institute granted:
1. $53,728 to William O. Russell, pathologist, for training and research in pathology.
2. $28,750 to Felix L. Haas, biologist, for research on cellular substances required for induction of mutation.
3. $15,077 to William 0. Russell, associate internist, for research on the complex pathogenicity of malignant tissues.
4. $19,520 to Daniel Billen, biologist, for studies of cell strains, from the Damon Runyon Memorial Fund for Cancer Research, Inc.
5. $18,975 to Robert B. Hurlbert, associate biochemist, for research on cytidine nucleotides and the biosynthesis of DNA.
6. $17,673 to John E. Healey, Jr., associate experimental surgeon, for study of the effect of chemotherapeutic agents on the liver.
7. $16,792 to Herman D. Suit, assistant radiotherapist, for studies on tumor response in local x-irradiation.
8. $14,131 to Beaurry C. Burns, Jr., assistant gynecologist, for research on the transmission of tumor virus from animals to offspring.
9. $9,572 to Daniel E. Bergsagel, associate internist, for studies of buccal cell response as a measure of radiosensitivity.
10. $12,445 to H. Grant Taylor, pediatrician, for study of the transmission of tumor virus from animals to offspring.
11. $9,572 to Daniel E. Bergsagel, associate internist, for further study of the transmission of tumor virus from animals to offspring.

The Public Health Service of the Department of Health, Education, and Welfare awarded:
1. $10,350 to John A. Sykes, assistant biologist, for further study on fluorescence of acridine-polynucleotide complexes.
2. $10,000 to William O. Russell, pathologist, to supplement the original grant for collecting data on quantitative and qualitative differences in the sputum of smokers and nonsmokers by exfoliative cytology of pulmonary secretions.
3. $7,950 to MDAH for the Clinical Conference, "Tumors of the Skin."
4. $5,478 to Murray M. Copeland, associate director for education, for designing, planning, and conducting a mammography workshop.

Additional grants have been made recently to MDAH researchers. The grants are:
1. $28,000 to Bruno Jirgensons, biochemist, for structural studies of Bence-Jones proteins, from the Welch Foundation.
2. $19,520 to Daniel Billen, biologist, for studies of tumors and prevention of virus infections.
3. $16,400 to T. C. Hsu, biologist, for research on the transduction of tumor response in local x-irradiation.
4. $15,314 to John E. Healey, Jr., associate experimental surgeon, for work on nonsuture repair of body tissues using a plastic adhesive, from Ethicon, Inc.
Teaching Materials for Loan

"Mammography," a slide set series designed primarily for the radiologist, is now available from the Department of Medical Communications at MDAH. The set of 76 slides supplements with technical details the material provided in "Shoptalk" for the general practitioner. The set, which was developed with the support of the U. S. Public Health Service, includes a prerecorded magnetic tape narrated by Robert Egan, and a projectionist's manual with descriptions of the slides. These are available on loan to radiologists and hospital departments of radiology for $1.50, or may be purchased for $25 per set.

The response to the slide set, "Radiation Protection," was so great that for a time there were not enough sets to meet the demand. Additional sets are now available, but 3 weeks to 1 month's advance notice in ordering, and an alternate date are still requested because of scheduling problems.

"Biology of Neurospora," an 11-minute movie made at MDAH under the direction of T. C. Hsu, is also available on loan for $3.00 from the Department of Medical Communications. Time-lapse photomicrography is used to demonstrate growth phenomena in the pink bread mold, which is one of the most important organisms in genetic research. Designed primarily for college and high school biology courses, this film is also of interest to researchers who use time-lapse cinematography.

Russell Elected Vice-President

William O. Russell, head of the department of pathology and chief of the section of anatomical pathology at MDAH, was installed as vice-president of the American Society of Clinical Pathologists at the society's annual meeting in Chicago in September.

Dr. Russell received his M.D. degree from the Stanford University Medical School in 1938 and served as a resident in pathology at the Mallory Institute of Pathology in Boston in 1938 and 1939. In 1942, he studied tropical medicine at the Army Medical School on a fellowship from the John and Mary Markle Foundation. In 1943, under the auspices of the Foundation, he received a fellowship in Central America for the American Association of Medical Colleges.

Dr. Russell came to MDAH as pathologist-in-chief in 1948. Prior to his appointment here, he had served as resident and faculty member of the departments of pathology at Washington University Medical School in St. Louis (1939-1945), and the University of Southern California in Los Angeles (1945-1948). He served as pathologist and director of laboratories at the Santa Barbara Cottage Hospital and as consulting pathologist at the Santa Barbara General Hospital, Santa Barbara, California. Also he was a junior attending physician (in pathology) at the Los Angeles General Hospital.

Serving with Dr. Russell as officers of the Society for the coming year are president, Harold D. Palmer, M.D., Denver; president-elect, Robert W. Coon, M.D., Burlington, Vermont.

Seventh Annual Clinical Conference

"Tumors of the Skin" was the focal topic of the Seventh Annual Clinical Conference held at MDAH on November 8 and 9. Presented by MDAH and The University of Texas Postgraduate School of Medicine, the conference is planned so that physicians of Texas and other interested persons might have an opportunity to discuss and evaluate recent advances in diagnostic and therapeutic methods in the management of cancer.

J. Leslie Smith, Jr., MDAH associate pathologist, served as chairman of the program committee. Committee members were Murray M. Copeland, William S. MacComb, Lowell S. Miller, C. C. Shullenberger, Marga H. Sinclair, and Joe E. Boyd, Jr. More than 200 persons attended the conference.

Guest speakers from other institutions and staff members of MDAH presented 17 papers pertaining to etiology and epidemiology, diagnosis, and treatment of tumors of the skin. R. Lee Clark, Director and Surgeon-in-Chief of MDAH, noted in his introductory remarks that through 1961, 24% of all cancer patients admitted to MDAH had skin neoplasms. Although skin cancer is one of the more common and easily recognizable forms of cancer, it is often neglected because it is thought of as being nonlethal and more easily managed. Dr. Clark stressed that accurate diagnosis and adequate treatment are as important in controlling skin cancer as in other types of malignant diseases.

John M. Knox, associate professor of dermatology, Baylor University Col-

lege of Medicine, Houston, discussed "Environment and Skin Cancer." Sunlight is the factor in the environment responsible for most skin cancer, Dr. Knox said. The total, cumulative amount of exposure to carcinogenic wave lengths of sunlight (2,900 to 3,200 Å) is the important factor in human carcinogenesis. The inherent protection of the skin is primarily provided by the amount of pigment in the skin; individuals with dark skin are less susceptible to skin cancer than are those with fair skin. Dr. Knox discussed in detail the various theories relating to the location and type of cellular alterations that lead to cancer.

Herbert L. Traenkle, dermatologist, Roswell Park Memorial Institute, Buffalo, spoke on "X-Ray-Induced Skin Cancer in Man." The roentgen-ray dosage which produces carcinogenic effects has not been established. Dr. Traenkle suggested that perhaps there is a dose beyond which cancer is not produced. Skin carcinoma does not appear to be a common sequela of large x-ray doses. Both direct and indirect mechanisms appear to be operative in radiation-induced skin cancer.

"Viruses and Skin Tumors" was presented by Lewis L. Coriell, research director, South Jersey Medical Research Foundation, Camden, New Jersey. Ten years ago, viruses were not associated with cancer, Dr. Coriell stated. Although a virus etiology has (Conference, continued on page 5)
not yet been established for malignant tumors in man, 36 human and animal tumors are known to be caused by viruses. Included in these are 14 skin tumors. Dr. Coriell also discussed some of the characteristics of the polyoma virus that have made it a valuable stimulus to research.

Elson B. Helwig, chief of pathology and section of dermatopathology, Armed Forces Institute of Pathology, Washington, D. C., discussed “Pathology of Precancerous Skin Lesions.” Dr. Helwig described the pathological characteristics of Bowen’s disease, arsenical keratosis, erythroplasia of Queyrat, senile keratosis, and extramammary Paget’s disease. Because melanin is sometimes seen in extramammary Paget’s disease, it has been called a melanoma. However, histochemically, extramammary Paget’s disease has been established as an entity distinct from melanoma, Dr. Helwig reported.

Elson B. Helwig

James H. Graham, dermal pathologist and director of laboratories, The Skin and Cancer Hospital of Philadelphia, Temple University Medical Center, Philadelphia, presented “Precancerous Lesions and Internal Cancer.” The precancerous skin lesions discussed were Bowen’s disease, arsenical keratosis, extramammary Paget’s disease, senile keratosis, erythroplasia of Queyrat, and intraepidermal epithelioma of Jadassohn. Dr. Graham presented the associations of these diseases with cutaneous, extracutaneous, and internal cancer.

Frederick Urbach, professor of dermatology, Temple University School of Medicine, outlined “The Treatment of Skin Cancer in a Dermatologic Tumor Clinic.” Discussing principles of treatment, Dr. Urbach cited as goals of therapy the cure of the tumor; best cosmetic result possible under the circumstances; least inconvenience, loss of time, and expense to the patient. Factors influencing the decision as to type of therapy include histologic type of tumor; location and relation to adjacent structures; size of tumor; availability of trained personnel and equipment; physical condition and age of patient; and previous history of tumor. Dr. Urbach emphasized the need for cooperation among the various disciplines to realize the best diagnosis and treatment possible.

“Indications for Radiation Therapy of Skin Cancer” was the subject of the presentation by Carl F. von Essen, assistant professor of radiology, Yale University School of Medicine, New Haven. When surgical excision of skin cancer may produce greater functional and cosmetic disability to the patient, radiation therapy is indicated. The sequelae of improper irradiation of skin lesions have tended to provoke reactions condemning the modality as a whole, Dr. von Essen stated. However, the misuse of a form of treatment should not influence its selection when proper indications exist and when qualified physicians can apply it.

Papers were presented by eight members of the MDAH staff. “Some Epidemiological Aspects of Cancer” was the subject of the presentation by Eleanor J. Macdonald, epidemiologist. Miss Macdonald discussed the experience of MDAH with regard to skin cancer, exclusive of melanoma, for the years 1944 to 1961. Data were presented relating to incidence of skin cancer by age, sex, ethnic group, occupation, geographic area, type, number, and history of lesions, site and metastasis of tumors.

David Anderson, associate biologist, spoke on “Genetics and Skin Tumors with Special Reference to Basal Cell Nevus.” Multiple, cutaneous tumors of basal cell nevus type may be histologically indistinguishable from basal cell carcinoma. Clinically, the basal cell nevus appears to be part of a syndrome complex including jaw cysts and skeletal anomalies. The syndrome was demonstrated to have a genetic basis and to follow a dominant hereditary pattern.

A. J. Ballantyne, associate head and neck surgeon, discussed “Clinical Evaluation of Skin Tumors.” Reasons for excising benign as well as malignant tumors were presented. Among the factors which influence the surgeon’s decision as to the type of treatment are presence of abnormal skin in the vicinity of the lesion, multiplicity of lesions, local extent of the tumor, presence or absence of regional metastases, age and physical condition of the patient, and the attitude of the patient’s family.

“Adenoacanthoma of the Skin” was the title of the presentation by J. Leslie Smith, Jr., associate pathologist. This (Conference, continued on page 6)
lesion is of interest to the pathologist because of its pseudoglandular differentiation and the general lack of recognition of it as a histologic entity. To the clinician it is of interest because large lesions tend to recur with inadequate excision and because metastases, though infrequent, have been observed. The tumors are usually small and in complete excision there are no consequences.

Richard H. Jesse, Jr., associate head and neck surgeon, presented “Surgical Management of Skin Cancer.” In discussing the advantages of surgical therapy for skin cancer, Dr. Jesse stated that the surgical scar tolerates exposure to the environment better than the irradiation scar; surgical therapy can sometimes be an office procedure; and the surgical specimen can be submitted to the pathologist for biopsy examination to determine whether the excision of the tumor has been complete.

Luis Delclos, assistant radiotherapist, spoke on “Special Radiation Techniques.” The relative merits of different radiotherapy methods for the treatment of skin cancer were evaluated. Dr. Delclos discussed the use of beta-ray plaques, contact therapy units, superficial x-rays, surface radium applicators, short distance telecurie units, and interstitial radiation.

“Chemotherapy by Means of Regional Perfusion Including Malignant Melanoma” was presented by John S. Stehlin, Jr., associate general surgeon. Regional perfusion for malignant melanoma has resulted in regression of disease for one out of three patients. Perfusion has been found useful for relief of pain associated with advanced cancer, for palliation of large, malignant lesions, and for diminishing the extent of excision necessary. For potentially curable cancer, chemotherapy by perfusion is not a substitute for surgical therapy. Perfusion has been shown to be of value in palliation. However, its use needs further study before it can be recommended as a standard procedure, Dr. Stehlin stated.

Throughout the discussions, it was emphasized that skin cancer can be detected in its early, curable stages and that it is accessible to diagnostic and therapeutic procedures. The incidence of skin cancer in the Southwest is especially high. Treatment of skin lesions involves special consideration in regard to environmental exposure. Cooperation among the various disciplines is essential for optimum diagnosis and individualized treatment of patients with skin cancer.

The topics of previous clinical conferences have included cancer of the breast, melanoma, cancer chemotherapy, head and neck tumors, and carcinoma of the uterine cervix, endometrium and ovary.

Newly appointed staff members at MDAH include the following:

Marjorie Hendrickson has been named assistant in anesthesiology, section of anesthesiology, department of surgery. Dr. Hendrickson received her M.D. degree at The University of Texas Medical Branch, and served her internship at the University Hospital in Birmingham, Alabama. Following her residency at The University of Texas Medical Branch, she held an appointment at that institution as instructor of anesthesia.

John H. Jardine has accepted the position of assistant veterinarian in the section of experimental animals, division of research. Dr. Jardine received his B.S. degree at Louisiana Polytechnic Institute and his D.V.M. degree at the School of Veterinary Medicine, Agricultural and Mechanical College of Texas.

Neill Byron Longley has joined the MDAH staff as assistant in radiology (part-time), section of diagnostic radiology, department of radiology. Dr. Longley was awarded the M.D. degree at The University of Texas Southwestern Medical School. He served his internship at the U.S. Air Force Brooke Medical Center, and his residency at the Mallinckrodt Institute of Radiology.

Thomas S. Matney, formerly section chief in research with the Department of the Army at Fort Detrick, Maryland, has accepted the position of associate biologist in the department of biology at MDAH. Dr. Matney received his M.S. degree at Trinity University and his Ph.D. degree at The University of Texas.

John P. McGraw has been appointed chief of the section of diagnostic radiology in the department of radiology.

Alice N. Milner has been appointed research associate in the department of biochemistry. Dr. Milner received her Ph.D. degree from Baylor University College of Medicine. She has served as a fellow in the department of biochemistry at MDAH since 1959.

David D. Paulus, Jr. has received an appointment as assistant in radiology, section of diagnostic radiology, department of radiology. He was awarded the M.D. degree at the University of Oklahoma School of Medicine, served
Scientific Presentations

Daniel Billen, biologist, presented a paper on "Association of Deoxyribonucleotide Polymerase and DNA in Bacterial Extracts" at the 13th International Congress of Microbiology which was held in Montreal, Canada, August 19 to 24.

Beaury C. Burns, Jr., assistant gynecologist, lectured on "Surgery in the Treatment of Squamous Cell Carcinoma of the Cervix" at The University of Texas Medical Branch in Galveston, July 11.

R. Lee Clark, Director and Surgeon-in-Chief, spoke on "The Use of Plastic Adhesive in Nonsuture Intestinal Anastomosis," co-authored by Philip O'Neill, fellow in experimental surgery, John E. Healey, Jr., assistant experimental surgeon, and H. Stephen Gallagher, assistant pathologist, at The Texas Surgical Society meeting in Austin, September 30 to October 2.

Murray M. Copeland, associate director for education, presented a paper on "Clinical Classification of Tumors for End Results Reporting" at the Seminar Congress in Surgery, which was held at The University of Vienna, Austria, July 20.

William C. Dewey, associate physicist, and Joan G. Heidelberg, senior dosimetrist, presented papers at the Southwest Society of Nuclear Medicine meeting in Dallas, June 27 to 30. Dr. Dewey spoke on "Localization of Antifibrin Antibodies in Human Tumors" and Mrs. Heidelberg spoke on "The Effects of 250-kvp X-irradiation on the Functioning of the Thyroid."


Charles O. Doudney, biologist, presented a paper on "UV-induced Mutation as an Event in the Phyiology of the Bacterial Cell" at the University of Leiden Conference on Radiation Damage and Recovery in Leiden, The Netherlands, August 17.

Gilbert H. Fletcher, radiotherapist, lectured at the USAF Hospital at Lackland Air Force Base, June 5 to 6, on "Radiation Therapy Techniques in Carcinomas of the Larynx." At the Symposium on Nuclear Medicine during the American Medical Association meeting in Chicago, June 25 to 26, Dr. Fletcher spoke on "The Place of Cobalt-60 in the Management of Human Cancers." He gave a series of lectures at the United States Naval Hospital in San Diego, California, September 19 to 21, on "Tumors of the Ovary," "Malignant Tumors of the Cervix," and "Adenocarcinomas of the Fundus, Epithelial Tumors of the Urethra and Vagina."

Clifton D. Howe, internist, spoke on "The Chemotherapy of Cancer" at the Fourth Annual State-Wide Cancer Conference for Physicians, sponsored by the Missouri Division, American Cancer Society, at The University of Missouri Medical Center in Columbia, September 29.

Ronald M. Humphrey, assistant radiation biologist, William C. Dewey, associate physicist, and Herman D. Suit, assistant radiotherapist, participated in the Second International Congress of Radiation Research in Harrogate, England, August 5 to 11. Dr. Humphrey spoke on "Sensitivity of In Vitro Chinese Hamster Cells to Ultraviolet Radiation in Relation to the Life Cycle," Dr. Dewey presented a paper on "Restitution of Radiation Induced Chromosomal Damage in Chinese Hamster Cells Related to the Cell's Life Cycle," and Dr. Suit spoke on "Radiation Response of Anoxic Spontaneous C3H Mammary Adenocarcinoma."

R. H. Jesse, Jr., associate head and neck surgeon, Richard G. Martin, associate general surgeon, and R. Vernon Colpitts, clinical assistant gynecologist, participated in The University of Texas Postgraduate School of Medicine course on "The Role of the Surgeon in the Management of Malignant Disease" in El Paso, September 16. Dr. Jesse lectured on "Curative Treatment of Cancer of the Head and Neck" and "Palliative Treatment of Cancer of the Head and Neck." Dr. Martin spoke on "Surgical Management of Soft Tissue Tumors" and "Palliative Treatment of Abdominal Malignancies." Dr. Colpitts discussed with a panel "Adenocarcinoma of the
Staff Publications


