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Cancer

A Special Report

Boston University Cancer Research Center
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A quick flip through a few of the many newscips that have recently featured the words and works of Medical Center professionals:

Literally hundreds of American newspapers in January carried articles based on the findings of a BUMC research study that linked major heart abnormalities in infants to the exposure of their mothers to female sex hormones early in pregnancy. The stories were based on a study by Olli P. Heinonen, M.D., Dennis Stone, M.D., and Samuel Shapiro, M.D., F.R.C.P., of the Medical Center's Drug Epidemiology Unit. The team had reported its findings in the New England Journal of Medicine. In most cases, the newspapers had picked up an Associated Press story, although a substantial number had used a New York Times News Service article. The clippings we have seen show notable differences in editing styles, some of them downright unconscious. An example: the Cleveland Plain Dealer, a fairly well known and presumably professionally run newspaper, carried a large two-column headline over this story about hormones and heart defects, proclaiming, "Baby brain flaws/blamed on the Pill." No wonder the public gets confused.

An editorial in the Providence (R.I.) Journal, urging community support for the Rhode Island Black Heritage Society, underscored its endorsement of the project by quoting School of Medicine professor of psychiatry Charles A. Pinderhughes, M.D., who wrote in The Black American Reference Book, "The majority of black people today make it clear that they will no longer be defined by someone else. . . . On the one hand, blacks want to join ranks, or build a 'nation'; but at the same time, they want to retain 'soul', being faithful to their individual selves, with each person defining what constitutes 'good' and what constitutes 'bad' in his or her experience." . . .

Otto McClain's "Happiness Through Health" column in the Des Moines, Iowa, Bystander, recently examined the problem of alcoholism among women, and reported on testimony that BUMC's Henry L. Rosett, M.D., had given before the U.S. Senate subcommittee on alcoholism and narcotics. Rosett, a professor of psychiatry, had told senators of one study that showed that "of 42 infants born to heavy drinking women, 69 percent presented at least one abnormality, as compared with 36 percent of those born to moderate drinking women and 35 percent of those born to rare drinking women," the columnist reported. (For more on Rosett's study, see Kaleidoscope in the Winter 1976/77 Centeroscope.)

Like their counterparts in the United States, major publications throughout South America, including El Nacional of Caracas and Resumen, a newsw eekly, carried extensive articles on the findings of School of Medicine researcher Ana G. Colmenares, Ph.D., on malnutrition-induced retardation in children. Colmenares, who became interested in the problem of malnutrition in her native Venezuela, reported in a paper that drew wide attention last fall that she had found evidence that early malnutrition may only delay brain development, rather than leave irreversible damage.

The New York Times News Service and the Los Angeles Times/Washington Post News Service gave broad distribution to articles based on a recent report of Jane Porter and Hershel Jick, M.D., of the Medical Center's Boston Collaborative Drug Surveillance Program. The researchers' report in the Journal of the American Medical Association updates their previous findings that adverse reactions to prescription drugs in the hospitals caused the deaths of 29,000 hospital patients a year. The researchers now say that 24 of the 26,462 patients in their study — or 0.9 per 1,000 — were considered to have died as the result of one drug or combination of drugs. In a previous study of 6,200 patients, they found the rate to be 4.0 per 1,000.

Numerous health and science writers picked up on quotes by Eli Shapiro, M.D., a BUMC assistant clinical professor of medicine, in the Family Physician, a journal published by the American Academy of Family Physicians. Shapiro captured a great deal of press interest with his opinions on the dangers of cultism, "a sociopathic illness which is rapidly spreading throughout the United States."

Psychology Today carried an article on a method developed by BUMC researchers which has helped epileptic patients whose attacks may be emotionally triggered learn to control their seizures. Robert Feldman, M.D., and Norman Paul, M.D., of the Department of Neurology, use videotape to record the moments just before a patient's attack, which amnesia usually causes the patient to forget. They later show the tape to the patient, allowing him or her to see what emotional "trigger" preceded the attack. The patient can then understand what situations contribute to causing the seizures, and can eventually learn to control the attacks.

Two Connecticut papers, the New London Day and the Hartford Courant, ran stories on a survey done by Edward Gaensler, M.D., a physiology professor at the School of employees at General Dynamics-Electric Boat in Groton. Gaensler's study showed that only 6 to 8 percent of workers examined showed signs of asbestosis, a chronic lung disease caused by exposure to asbestos. Gaensler was hired by the company after studies done by another medical team last year showed that almost 50 percent of the workers had signs of the disease.

Readers in Santa Rosa, California, saw a News-Herald article on beards, in which professor of dermatology Herbert Mescon, M.D., cited the growth of an average beard as 0.017 inch per day, or roughly half an inch per month. Mescon was also quoted on a little-known benefit of obesity: that "fat men usually get smoother shaves because the large amount of fatty tissue gives the facial skin greater resiliency under the pressure of a razor."
THE COVER: Photo made from color slide shows tumor cell in the process of rarely seen pentapolar mitosis, or five-way cell division, in which cell about to divide has five complements of chromosomes instead of the usual two. Abnormal size, shape or staining of the nucleus is one of the identifying characteristics of the cancer cell.

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Peter J. Mozden, M.D., chief of surgical oncology, and Teresa Rudowski, M.D., a radiation oncology fellow, check the progress of a patient on the surgical oncology unit. The many dimensions of cancer research, patient care and education are highlighted in this special issue on the Cancer Research Center beginning on page 12.
Commentary

Multi-hospital systems: a possible solution to the hospital crisis?

by John I. Sandson, M.D.
Dean, BUSM

and

John H. Betjemann
Administrator,
University Hospital

(The following article appeared in a slightly modified form in the Boston Sunday Globe on April 24, 1977. The Globe described the proposal as "a radical new solution for financially beleaguered teaching hospitals." The article has stirred interest in both the public and the hospital-administration sectors. We invite the comment of Centerscope's readers. Editor)

The double-digit inflation of health-care costs is producing a crisis in academic medical centers, especially those that are private institutions. Because Boston is renowned for its constellation of medical schools and teaching hospitals, it seems especially crucial to find a creative solution to the hospital-cost problem here and now.

Most of the nation's private academic medical centers are in urban areas and consist of a medical school (and sometimes other health-professional schools) closely associated with one or more teaching hospitals. The teaching hospital is sometimes part of the same corporate entity as the medical school, but is most often an independent entity, with separate fiscal accountability.

Centers for specialized care. Urban teaching hospitals have become referral medical centers that deliver very specialized care, such as open-heart surgery or renal transplantation. This third level of care, that which is beyond the primary care delivered by private physicians and the secondary level provided most often in community hospitals, is "tertiary," or highly specialized care.

In the midst of the general escalation of health-care costs, the added cost of delivering such tertiary care, plus the expenditures involved in teaching, have driven the per-unit cost of health care in urban teaching hospitals to extraordinarily high levels. Both Medicaid and Medicare are now refusing to pay the full costs for their beneficiaries in these hospitals. This stance, coupled with the costs incurred through an increasing amount of free care, has led to bigger and bigger deficits, placing some of the leading teaching hospitals in the country in critical financial straits. It has also placed a serious strain on the Medicaid budgets of those states, including Massachusetts, that purchase primary- and secondary-care services, as well as tertiary medical-care services from high-cost teaching hospitals.

Traditionally, society has counted on the academic medical center to educate and train its health professionals, provide the advances in knowledge upon which medical care depends, and undertake the care and treatment of patients suffering from advanced and unusual diseases. Now, there is a question: Is the academic medical center worth the cost? Government regulators seem to be answering no, not unless costs can be moderated and innovative ways to support this system can be found.

Of the possible solutions, a method for distributing the high costs of tertiary care more equitably throughout the health-care system seems to hold the greatest potential. A large step could be made in that direction by decentralizing tertiary care to community hospitals through an alliance with academic medical centers, thus creating a "multi-hospital system." This system would distribute the cost of tertiary care without lowering the quality of care.

Teaching hospitals, under internal and external pressures to lower the very high costs of tertiary care, are developing more efficient management, but so far with little or no effect on the high unit cost.

Who is 'someone else'? The teaching hospitals are also getting the message that they should isolate educational costs and have someone else pick up that bill. But who might this "someone else" be? The federal government could choose to pay all teaching costs; since it pays many of the teaching costs now, through its reimbursement programs, the increased expenditure would not be overwhelming. The total cost of the salaries for all interns and residents (hospital house staff) in the country is probably less than $1 billion. About 50 percent of house staff costs is already being paid by Medicaid and Medicare. To pay the difference would increase the total federal expenditure in health by only one percent. Since these salaries are already being paid by the total health-care dollar, such a payment would represent a shift—but not a net increase—in total health expenditures. That shift would serve to decrease the fiscal pressure on the teaching hospitals.

This solution, although apparently feasible, is not likely to be realized, since our congressional representatives do not now appear eager to assign more of the total health dollar to the federal budget.

The decentralization of tertiary care to community hospitals might be the best possible approach, under these circumstances. By extending house-staff and medical-student education to these hospitals, we could improve quality.

Such decentralization, unless it were done carefully, could be undesirable from the perspective of quality health care. But the multi-hospital system approach, linking an academic medical center with a group of community hospitals, could maintain and even improve the quality of care.

The average per-diem cost throughout the multi-hospital system (Continued on page 56)
Kaleidoscope

**BUMC researchers report link between hormones, birth defects**

Women who take female sex hormones while pregnant have twice as much chance of bearing babies with heart abnormalities as women who do not take those hormones, according to a report in the *New England Journal of Medicine* by three researchers from the Medical Center’s Drug Epidemiology Unit. The article, published in January, was by Olli P. Heinonen, M.D., Dennis Slone, M.D., and Samuel Shapiro, M.D., all associate professors at the School of Medicine.

**50,000 women studied.** Studying more than 50,000 pregnant women between 1958 and 1965, the researchers determined that among 1,042 women in the study who took hormones during the first four months of pregnancy, there were 19 children born with heart defects—18.2 per 1,000 births. This compares with a 7.8 per 1,000 cardiovascular abnormality rate among 49,240 children not exposed to the hormones.

In addition, six children with heart defects were born to a subgroup of 278 women who used birth-control pills during early pregnancy—a rate of 21.5 per 1,000. The findings support previous data that link prenatal exposure to birth-control pills with various birth defects. The women in the Drug Epidemiology Unit study and earlier ones, however, took the older type of oral contraceptives which contained much higher amounts of progesterone and estrogen than pills in use today. The Drug Epidemiology Unit study did not examine the effects that current oral contraceptives have on prenatal development.

Evidently, some women who took the older type of oral contraceptives were unaware that they were pregnant. Also, a decade ago, physicians more widely used progesterone and estrogen to test for pregnancy or to forestall miscarriage. Subsequently, the hormones were found to have little value in protecting the pregnancy, and the synthetic estrogen DES has been linked directly to vaginal cancer during adolescence in the daughters of some women who used the drug.

**Gould to coordinate joint Boston center for perinatal care**

The School of Medicine will be one of five Boston-area health institutions involved in a major joint venture to provide optimal care to high-risk newborns. The program will be launched in midsummer by the institutions in conjunction with Boston’s Department of Health and Hospitals (DHH).

The program, the Boston Perinatal Center, will be a consortium of Boston City Hospital (BCH), Boston Floating Hospital (Tufts-New England Medical Center), St. Margaret’s Hospital, BUSM and Tufts University School of Medicine.

**Requires no construction.** Jeffrey B. Gould, M.D., a BUSM associate professor of pediatrics and obstetrics and gynecology, and director of Newborn Services at BCH, has been named program coordinator for the Boston Perinatal Center, and will be responsible for the center’s overall design and operation. The program will not require the outlay of any funds for construction of facilities, since existing hospital units will be used.

Joel J. Alpert, M.D., professor and chairman of pediatrics at BUSM and pediatrician-in-chief at BCH, was among those leading the collaborative effort that brought about the new service; the others were Sydney S. Gellis, M.D., professor and chairman of pediatrics at Tufts University School of Medicine and pediatrician-in-chief, Tufts-New England Medical Center; and Joseph Kennedy, M.D., associate professor of pediatrics and assistant professor of obstetrics-gynecology at Tufts and chief of neonatology at St. Margaret’s Hospital.

**Interhospital effort.** The program represents an interhospital and interinstitutional effort to improve already excellent services available at

*Rose O’Leary, L.P.N., helps a mother feed her premature baby in the Special Care Nursery for newborns at Boston City Hospital.*
BCH and St. Margaret's Hospital (both designated as perinatal centers) and at the neonatal intensive care unit at Boston Floating Hospital, which has no inpatient maternity service, but is one of the few pediatric hospitals in the state. The chiefs of pediatrics and obstetrics in the three hospitals feel that by combining and coordinating their efforts, they will be able to develop a greater flexibility for patient care by offering their total resources to patients in need.

Perinatal medicine deals with the expectant mother after her seventh month of pregnancy and with both mother and child until one month after the child is born.

**BUSM awarded grant of $3.5 million for lung-disease study**

A large-scale, multidisciplinary investigation into the mechanisms of various kinds of lung disease will be carried out under a $3.5-million grant recently awarded to BUSM. The award is the second largest currently held by BUSM, the largest being the $4.5-million SCOR (specialized center of research) hypertension grant awarded a year ago.

Carl Franzblau, Ph.D., a professor of biochemistry, is principal investigator under the five-year National Heart, Lung and Blood Institute grant, and Gordon L. Snider, M.D., a professor of medicine, is co-principal investigator. The departments of Biochemistry, Pathology, Medicine, Surgery and Pharmacology, as well as the Department of Biology on the Charles River campus, will all be significantly involved in the program project.

The broadly-based study, entitled "The Response of the Lung to Injury," will focus on the pathogenesis of emphysema and interstitial lung disease, but will also explore the response of the lung to foreign substances, such as asbestos. In addition, the growth and development of the lung, and its response to pneumonectomy, will be investigated. These phenomena will be studied biochemically, physiologically, pharmacologically and ultrastructurally.

Work on the study will be done not only at BUSM, but also on the Charles River campus, at the Boston VA Hospital, at the Evans Memorial Department of Clinical Research at University Hospital, and at the Thorndike Laboratory and the Mallory Institute of Pathology of Boston City Hospital.

**Large-bowel cancers found higher in rats on polyunsaturated fat diet**

Rats fed a diet high in polyunsaturated fat developed more large-bowel cancers than either of two groups of rats fed a diet containing saturated fat, when all three groups were given a cancer-inducing chemical, according to BUSM scientists.

The findings, reported at the annual meeting of the American Society for Microbiology, may have possible implications for persons who have switched to polyunsaturated fats in their diets to reduce the risk of developing heart disease. Polyunsaturated fats are more often found in foods derived from vegetables, such as corn oil margarine and safflower oil; saturated fats are more often found in animal-derived foods, such as beef, butter and cream.

**All diets high in cholesterol.** Among the rats fed saturated fat, those receiving a high-fat diet developed 175 percent more tumors than those given a low-fat diet. But in both saturated-fat groups, the number of rats developing tumors and the number of tumors per rat were lower than in the group fed polyunsaturated fat. Diets in all three groups were high in cholesterol.

"Extrapolating from animal to human studies always entails some difficulties, but the findings would suggest that diets high in polyunsaturated fats aimed at reducing cholesterol levels in the blood might conceivably increase the risk of developing cancer of the large bowel," Selwyn A. Broitman, Ph.D., a BUSM professor of microbiology, said.

In recent years Americans have been urged to switch from saturated fats to polyunsaturated fats in their diets to reduce the risk of cardiovascular disease. While the results of the Boston study seem to suggest that persons who do so may be avoiding heart disease at the cost of increasing their risk of developing cancer of the colon, the BU researchers emphasized that the far smaller incidence of the latter disease makes it substantially less a risk than heart disease for most people.

The findings were reported at the ASM meeting May 11 in New Orleans by Sara W. Rothman, Ph.D., an assistant research professor of microbiology at BUSM, and Broitman. Approximately 8,000 scientists attended the six-day meeting, which brought together microbiologists, molecular biologists, and other scientists from across the country.

**The colon cancer connection.** A connection between diet and colon cancer has been established through epidemiological studies showing that in Western countries, such as the United States, where a diet high in fat and cholesterol is common, there is a high incidence of large-bowel cancer, while in countries where a diet low in fat and cholesterol is the rule, such as Japan, people are much less likely to develop the disease.

In the Rothman-Broitman study, rats were divided into four groups, each receiving a different diet: one high in saturated fat (20 percent of the total diet); another low in saturated fat (5 percent); a third high in polyunsaturated fat (20 percent); and the fourth low in polyunsaturated fat (5 percent). All of the diets were high in cholesterol. All four groups of rats were then injected with dimethylhydrazine (DMH), a chemical known to cause cancer in the large and small bowel.

All of the animals on the high polyunsaturated fat diet developed colon cancer, with an average of 3.8 tumors for each rat. Eighty-five percent of the rats on the high saturated fat diet developed the disease (average 2.2 tumors per rat), compared with only half the rats on the low saturated fat diet (average 0.8 tumors each). The rats in the fourth group, those on the low polyunsaturated diet, all died, apparently of some dietary inadequacy, and could not be used in the study.

In a control group of rats receiving no DMH, no tumors developed.

The specific focus of the study was to determine whether the effect of diet on tumor incidence might be tied to its role in changing the level of a
particular bacterial enzyme, beta-glucuronidase, in the large intestine. The chemical carcinogen DMH, which Rothman and Broitman gave their rats, is detoxified in the liver, which disarms the chemical by hooking it to a sugar molecule, making it harmless. However, beta-glucuronidase splits the sugar off, leaving the chemical free to be converted to a tumor-causing product.

Enzyme level measured. Theorizing that a high-fat diet might cause tumors by causing the bacteria to produce more of this enzyme, the two BUSM scientists measured the levels of the enzyme in all their subject rats, but could find no correlation between levels of enzymes and incidence of tumors.

"It is safe to say that the enzyme level is not the factor that shifts with diet to cause cancer," Rothman said.

The study was supported by the National Large Bowel Cancer Project, of the National Cancer Institute.

Rothman and Broitman are currently looking at the role of other intestinal enzymes in cancer production, and are expanding their studies to include a comparison of the effects of diets with and without cholesterol, and with varying ratios of polyunsaturated to saturated fats.

Williams is named to top BUSM, Hospital surgery positions

Lester F. Williams, Jr., M.D.

Lester F. Williams, Jr., M.D., an associate dean and a professor of surgery at the School of Medicine, has been named surgeon-in-chief of University Hospital and chairman of the Division of Surgery of the School of Medicine.

The appointment was announced May 25 by Richard H. Egdahl, M.D., director of the Medical Center, and was effective immediately.

Williams, 46, is a general surgeon known for his clinical and research work in the field of gastrointestinal disease. He has been vice-chairman of the Division of Surgery since 1973, and chief of the gastrointestinal surgical section, University Hospital, since 1971. As an associate dean, Williams has been responsible for implementing the School of Medicine's relationship with Boston's Department of Health and Hospitals (DHH). The School of Medicine is responsible for the provision of medical services for DhH. Williams is also director of the Sears Surgical Research Laboratory.

Abilities as surgeon cited. In announcing the School of Medicine and University Hospital appointments, Egdahl called attention to Williams's effectiveness as an academic surgeon and manager.

"Lester Williams is well known and highly regarded by his peers as a gastrointestinal surgeon, and he is one of the most active surgical researchers in Boston. His principal current research, an investigation of the formation of gallstones, represents a continuation of earlier work in collaboration with Dr. Donald M. Small, a professor of medicine at the School of Medicine, in which a primate model was developed for the study of gallbladder function.

"Earlier in his career," Egdahl said, "Dr. Williams and several colleagues at the School of Medicine, including Dr. Robert L. Berger, chief of cardiovascular surgery, did important work on the effects of myocardial infarction on blood flow in the intestine.

"In addition," Egdahl continued, "Dr. Williams's ability as an administrator of a complex medical system has been shown in his development of the Boston University Medical Center Surgical Residency Program, which brings under one management structure three formerly separate training programs."

As the surgical chairman, Williams will fill two important posts: chairman of the School of Medicine's Division of Surgery, in which he will hold the James B. Utley Professorship; and surgeon-in-chief of the 373-bed University Hospital. The Division of Surgery includes the Departments of General Surgery, Plastic Surgery, Cardiothoracic Surgery, Neurosurgery, Orthopedic Surgery, Otolaryngology, Oral Surgery and Stomatology, and Urology.

The Division of Surgery is responsible for the education and training of 520 medical students and 78 postgraduate trainees. Faculty members of the Division coordinate education and training programs at University Hospital, the Boston Veterans Administration Hospital, Boston City Hospital, and Brockton, Cape Cod, Carney, Framingham Union, Malden and Norwood Hospitals, and Pawtucket Memorial Hospital in Rhode Island.

A Brockton native. A native of Brockton, Mass., Williams received his B.A. from Brown University in 1952 and his M.D. from the School of Medicine in 1956. After spending a decade receiving his postgraduate training and then serving in the medical corps of the U.S. Air Force, Williams was appointed an assistant professor of surgery at BUSM in 1965. He became an associate professor in 1967 and was promoted to professor of surgery in 1971.

Williams's current interest in the role of the gallbladder in the development of gallstones is supported by a five-year grant from the National Institutes of Health (NIH). His earlier research interest, the relationship between myocardial function and blood flow in the intestine, was supported by research funding from the NIH and the United States Army.

A prestigious post. The surgery chairmanship at the School of Medicine and University Hospital is considered an especially prestigious post in academic surgery. A predecessor, John A. Mannick, M. D., is now Mosley Professor of Surgery at Harvard Medical School and chief of surgery at Peter Bent Brigham Hospital. Mannick was preceded by Egdahl, now the director of BUMC and academic vice-president for health affairs of the University. Egdahl is a former president of the Society of University Surgeons.

Williams is a member of the American Surgical Association, the
American College of Surgeons, the Society of University Surgeons and the American Federation for Clinical Research. He has published more than 80 reports on his research investigations. He has been cited several times as an outstanding teacher at the School of Medicine. He holds appointments as a consultant in surgery at Malden Hospital, Carney Hospital and Brockton Hospital.

Williams resides in Shrewsbury, Mass., with his wife, Sara Jayne, who is a lieutenant colonel (ret.) in the nurse corps of the U.S. Air Force. Mrs. Williams, currently director of nursing at the Hubbard Regional Hospital in Webster, Mass., will soon assume the position of associate director of ambulatory care at the Hospital of the University of Massachusetts Medical Center, Worcester.

Williams succeeds John R. Benfield, M.D., in the top surgery posts. Benfield, who was appointed to succeed Mannick on Jan. 1, 1977, resigned shortly thereafter for personal reasons.

**Cohen is named president-elect of rheumatism group**

Alan S. Cohen, M.D., Conrad Wesselhoeft Professor of Medicine at BUSM, was named president-elect of the American Rheumatism Association, the medical-scientific component of the Arthritis Foundation, at the group's recent annual meeting in San Francisco.

Cohen is chief of medicine at Boston City Hospital and director of the Thorndike Memorial Laboratory there. He has been chief of the arthritis section of the Evans Memorial Department of Clinical Research and Preventive Medicine at University Hospital since 1960 and has recently been engaged in developing an organizational structure for the coordination of all arthritis-related work at Boston University and its related health institutions.

Cohen has been active in the American Rheumatism Association for a number of years and has served on its executive committee and chaired a number of other working committees. While he was chairman of the ARA's criteria committee, the commonly used Classification of the ARA's criteria committee, the commonly used Classification

Alan S. Cohen, M.D.

Criteria for Systemic Lupus Erythematosus were established. He is a member of the Editorial Board of Arthritis and Rheumatism, has written or edited several books, including Laboratory Diagnostic Procedures in the Rheumatic Diseases, now in its second edition, and the recently published Medical Emergencies, Diagnostic and Management Procedures from the Boston City Hospital. He is the author of more than 300 publications and abstracts in the field of arthritis.

**Pioneer in amyloid research.** His major research has been in studies of systemic lupus erythematosus and of amyloidosis. The latter, a disorder previously thought to be rare, has been shown to be an accompaniment of many infections or inflammatory disorders, to occur along with aging, and to appear as a unique entity or as part of a hereditary syndrome. Cohen was the first to establish that amyloid is a unique protein that can be isolated and characterized, and he has performed with his associates many pioneer studies of its chemistry, immunology, and biophysical and clinical aspects. Based on his research, a new method of treating patients with amyloid disease has been developed and is currently being studied at the Thorndike Memorial Laboratory.

Recently, Cohen was in Spain to address the Spanish Rheumatology Society on the latest developments in amyloidosis at a symposium on rheumatic diseases. He was one of three Americans invited to address the two-part symposium, which took place in Madrid and Barcelona, attracting several hundred rheumatologists and internists.

Cohen has served as a consultant to the National Academy of Sciences, as chairman of the Arthritis Graduate Training Grant Committee, and as a member of General Medicine Study Section A of the National Institutes of Health. He has been active with the Massachusetts Chapter of the Arthritis Foundation and is currently chairman of its medical and scientific committee and on its Board of Trustees.

**An outstanding alumnus.** The new president-elect has been honored as one of the "Four Outstanding Young Men in Massachusetts," and as one of the 21 "Outstanding Alumni of Boston University School of Medicine" in the School's 100-year history. He is the current president of the Alumni Association of Boston University School of Medicine. He received his undergraduate degree from Harvard University.

**SGD's Kapala to head Pedodontics Dept.**

Jon T. Kapala, D.M.D., associate professor of pedodontics at the School of Graduate Dentistry and chairman of the School's Department of Predoctoral Pedodontics-Orthodontics, has been named chairman of the Department of Pedodontics. Kapala will continue to serve as the School's director of predoctoral admissions and student affairs.

Kapala succeeds Spencer N. Frankl, D.D.S., who resigned from the chairmanship last spring after holding that post for 12 years. Frankl became the School's dean July 1, 1977, upon the retirement of the former dean, Henry M. Goldman, D.M.D.

Kapala, who earned both his B.S. and his D.M.D. degrees from Tufts University, received an M.Sc.D. in pedodontics from the School of Graduate Dentistry in 1968. He has been a full-time member of that department since that time.

Kapala was instrumental in establishing SGD's office of Predoctoral
Matching Day, 1977

Matching Day, an annual event at which fourth-year medical students learn of their residency assignments, went well for BUSM students this year, with 38 of them receiving their first-choice internship. Some of the reactions registered at that long-awaited moment were caught by the Centerscope camera. Counterclockwise, from top left, Michael Gilio mops brow in apparent relief as he learns he is going to the University of South Florida Affiliated Hospitals, Tampa; Victoria Cargill, who seconds later erupted with a happy shout, reads that she's being assigned to Peter Bent Brigham Hospital, Boston; Myron Maron opens his mailbox to learn his assignment (Southside Hospital, Bayshore, N.Y.); Charles F. Sanzone holds his letter up to the light, learns he has to open it to find out that he is going to New York's Presbyterian Hospital.
Admissions and Student Affairs, has lectured in the Department of Oral Biology, and the Department of Anatomy at the School of Medicine, and has taught preventive dentistry in University Hospital's Home Medical Service (then a part of the School of Medicine).

He is also active in professional organizations on both a national and state level. He is a diplomate of the American Board of Pedodontics and has been nominated to the board of directors of the American Academy of Pedodontics. He is chairman of the ad hoc committee on the survey of regional groups for that organization and is currently serving as the president of the Massachusetts Society of Dentistry for Children. He has been elected secretary to the Council of Sections of the American Association of Dental Schools. He is also a member of the Academy of Dentistry for the Handicapped.

Drug study given $1.2-million renewal

A $1.2-million, three-year renewal of a grant to study drug toxicity has been awarded to the Medical Center's Boston Collaborative Drug Surveillance Program, headed by Herschel Jick, M.D., an associate professor of medicine at BUSM. Researchers involved in the study will use clinical data to measure the acute and long-term toxicity of all drugs commonly used in medicine. A goal of the study is to provide such precise data to physicians as an aid to their practice of therapeutics.

The grant, "Acute and Long-term Clinical Toxicity of Drugs," is funded by the National Institute of General Medical Sciences and by the Food and Drug Administration.

In a study stemming from the first part of this research, Jick and his colleague, Jane Porter, determined that the number of drug-attributed deaths in a series of 28,000 patients was not "substantially different" from that of a series of 6,200 patients studied five years earlier, and that "It was quite low in both series, considering the large number of drugs which were prescribed and the serious illnesses being treated."

Jick and Porter published their results in a paper entitled "Drug-Related Deaths Among Medical Inpatients," in the Feb. 28 issue of JAMA.

Seven BUSM students chosen to receive new Mass. subsidy

Seven Massachusetts residents who are first-year students at the School of Medicine have been selected by lot from among nine qualified applicants to receive a new subsidy from the Commonwealth that will allow the students to pay only $2,000 in tuition this year.

Nine of 23 qualify. Nine of the 23 first-year students who applied for the subsidy were found to be qualified on the basis of certifiable residency, individual merit, and a demonstrated financial need of at least $3,300 in the academic year 1976-77.

Under terms of a contract between BUSM and the New England Board of Higher Education, the Commonwealth agreed to subsidize the cost of educating seven first-year students who are Massachusetts residents. The contract makes possible a tuition reduction for participating students of $3,300, and allows the School to recover the approximate net cost of educating these students.

The seven students had to agree to serve in a medical capacity within the state for a period of six months for every one year of state support received. It is expected that support for the seven selected students will continue for the next three years.

BUSM friends cheer 'Tory' Lunetta's 50th

Salvatore Lunetta, a technician in the Department of Anatomy, was honored recently with a surprise party in the Dean's Office in recognition of his 50th anniversary as a BUSM employee.

Faculty members, department heads, and friends crowded into the Dean's office for the party, at which Dean Sandson presented Lunetta with a rocking chair bearing the School of Medicine seal. The 73-year-old Lunetta has been granted eight employment extensions to allow him to stay on the job past the normal retirement age. He still has no immediate retirement plans.

Lunetta is primarily responsible for the maintenance of the collection of slides that are loaned to students, according to William F. McNary, Jr., Ph.D., associate dean for student affairs. "Tory has a talent for preparing excellent neurological and histological slides," McNary said.

Salvatore Lunetta, who has worked for BUSM for 50 years, and his wife, Louise, receive congratulations from B.U. President John R. Silber at the University's annual Service Recognition Dinner in May. Silber made a special presentation of a Boston University chair and Kundo clock to Lunetta.
Legal Signs

‘Outrageous conduct’ and negligence—two cases show difference

by George J. Annas, J.D., M.P.H.

One column in this series deals with a patient who sued his surgeon and the hospital for creating his amputated leg. In that case the court found in favor of the defendants, noting that the method of disposal was standard and reasonable, and that the plaintiff had not specifically objected to it.

The two cases that are discussed in this column are similar to that case in that they involve bizarre fact patterns, but different in that in each case the hospital was held liable, in the first for negligence in not making a proper patient identification, and in the second for the tort of ‘outrageous conduct.’ Since this latter tort is of relatively recent origin, the cases also serve to illustrate the difference between conduct that is negligent and conduct that can be legally viewed as ‘outrageous.’

Case #1—The death of Emma Johnson. In the first case, from New York, the Hudson River State Hospital sent the following telegram to Emma Johnson’s sister:

REGRET TO INFORM YOU OF DEATH OF EMMA JOHNSON PLEASE NOTIFY RELATIVES MAKE BURIAL ARRANGEMENTS HAVE UNDERTAKER CONTACT HOSPITAL BEFORE COMING FOR BODY HOSPITAL WISHES TO STUDY ALL DEATHS FOR SCIENTIFIC REASONS PLEASE WRITE POST MORTEM CONSENT HUDSON RIVER STATE HOSPITAL

The sister informed Ms. Johnson’s daughter that her mother had died. The daughter accordingly made funeral arrangements. On the afternoon of the wake she and the sister went to the funeral home to observe the body and both mentioned that Ms. Johnson’s appearance had changed remarkably. That evening, becoming more agitated, they examined the body more carefully and verified that it was not their relative. At that point the daughter became ‘very, very hysterical’ and had to be helped from the funeral chapel.

Mistake confirmed. The hospital was called, and confirmed the fact that a different Emma Johnson had died and that plaintiff’s mother was alive and well in another wing of the hospital. The daughter did not work for 11 days and had ‘recurrent nightmares, terrifying dreams of death, seeing the coffin . . . difficulty in concentrating, irritability, inability to function properly, general tenseness and anxiety.’

The New York Court of Appeals, reversing a lower court, found that under these circumstances the daughter could recover not only out-of-pocket funeral expenses, but also damages arising from mental distress because such damages, proximately caused by the defendant hospital’s negligence, were substantial, and were suffered under such circumstances that they were likely to be genuine. The total award in the case was $7,500.

Case #2—The unburied infant. In the second case, from Tennessee, the plaintiff sought damages for outrageous conduct. The appeals court concluded that the jury could have found the following facts: The plaintiff, Ms. Johnson, was experiencing a difficult pregnancy and was hospitalized sometime during her sixth month of pregnancy. Shortly thereafter she gave birth to a premature infant who died within an hour of birth. The floor nurse advised her that the hospital would take care of the final disposition of the body. (Ms. Johnson, who wanted very much to have a son, had viewed the body, and it was a perfectly formed male infant.)

Six weeks later, while Ms. Johnson was waiting for her routine examination by her physician, she noted a pathologist’s report in her records which read that because of the size and age of the fetus it could not be used as a surgical specimen. Ms. Johnson asked the doctor what it meant, and he advised her to go to the hospital with her purse to see one Ms. Chaney about it. When they got to the hospital, Ms. Chaney said she had been looking for Ms. Johnson and that she had preserved the infant’s body. She then took Ms. Johnson to a refrigerator, opened the door, took out a jar of formaldehyde containing the ‘floating, shrivelled body’ of her infant, and handed it to Ms. Johnson. As a result of this incident, Ms. Johnson suffered from nightmares, insomnia, and depression when around children. She also had a pseudo-pregnancy which eventually necessitated exploratory surgery followed by psychiatric treatment for an indefinite period.

‘Outrageous conduct’ defined. The jury awarded Ms. Johnson and her husband a total of $300,000, which the trial judge reduced to $175,000: $50,000 of this amount was for punitive damages. The court explained the intentional tort of ‘outrageous conduct’ by noting that such conduct must be ‘so extreme in degree as to go beyond all bounds of decency and to be regarded as atrocious and utterly intolerable in a civilized community.’ The court further noted that ‘liability clearly does not extend to mere insults, indignities, threats, annoyances, petty oppression, or other trivialities. Rather the case is one in which the recitation of the facts to an average member of the community would arouse his resentment against the actor and lead him to exclaim ‘outrageous.’

The court found that the defendant physician himself never contracted to bury the infant and never engaged in any outrageous conduct, and accordingly reversed the verdict against him. It was the hospital, and the hospital alone, the court found, that agreed to bury the infant, breached that contract, and then, through its employees, outrageously and intentionally, displayed the dead child to its mother.

The hospital argued that, for outrageous conduct, damages could only be awarded for actual injuries sustained and that punitive damages (or ‘punishment’) damages could not be awarded. The Tennessee court, however, disagreed with this contention (which has been accepted in Illinois), saying the nature of the conduct itself would determine whether or not punitive damages are allowable and that there was no logical reason to permit such damages to be awarded in a case involving willful and wanton negligence but not to permit the recovery in one involving an even higher degree of misconduct.

An instructive similarity. While similar, the two cases are instructive in their differences. In the first, the question was one of negligence in not verifying a patient’s identity, while in the second it was outrageous conduct in intentionally displaying a dead child to a mother who believed it had long since been buried. Not only does the degree of culpability in the second case explain why the damages were almost 25 times higher, but it is also relevant that the plaintiff’s emotional harm led to both an open and permanent mental damage. Moreover, while the daughter was put through an emotionally draining experience in planning for her mother’s funeral, the fact that her mother was still alive and had not herself been harmed in any way by the hospital probably played a part in keeping the damages awarded by the jury low. On the other hand, in the second case not only was the mother treated in an outrageous manner, but so also was the body of her dead son, and the jury may also have had this in mind in awarding damages.

The fundamental lesson from both cases, however, is the same. Hospitals will be held liable for the emotional harm inflicted on patients and their relatives whether it is inflicted negligently or intentionally. Hospitals should take positive steps to insure that their employees understand and respect the rights of patients and their relatives—for the protection of both their patients and themselves.

(Continued on page 56)
A Special Report

Cancer

The search for answers to the cancer puzzle becomes more urgent as cancer emerges as an increasingly important threat to life and health. At present rates of incidence, 51 million Americans living today will develop some form of cancer, and 34 million will die from the disease.

Yet, despite the urgency, answers remain elusive. One reason is that cancer is not one disease, but many, affecting each of the more than 100 different kinds of body cells in a different way. Its causes are many and diverse, and include chemicals, viruses and radiation; its occurrence can be influenced by hormones, nutrition, inheritance and environment.

Treatment of cancer may involve, singly or in combination, surgery, radiotherapy, chemotherapy, and immunotherapy.

Cancer Research Center’s first task. No wonder, then, that cancer is approached from so many different perspectives by researchers in so many different scientific disciplines. When the Boston University Cancer Research Center was founded in 1974, its first task was to prepare an inventory of cancer-related research activities at the Medical Center and Charles River campuses of the University. So many, so scattered, and, in some cases, so fragmented, were these activities that no one could be sure of their scope or range.

The Cancer Research Center has changed this situation by seeking out these diverse efforts, organizing them into multidisciplinary groups whose focus is on cancer, and providing support to expand their efforts and increase their effectiveness.

These pages, then, are all about the men and women of the Boston University Cancer Research Center and their indomitable quest for answers to the urgent human problem that is cancer.

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People Behind the Programs
The Officers, Committees and Members of CRC
FIVE years ago, a "grass-roots" movement was launched by eight Boston University and University Hospital cancer specialists to explore the potential for forming a university-wide cancer center. The voluntary efforts of those individuals, and an increasing number of interested colleagues, soon received the backing of the Medical Center. The original informal group of eight grew into an official Medical Center Cancer Coordinating Committee of 18 members appointed by the Medical Center director.

Today, the Cancer Research Center is a federally designated national Cancer Center; it involves the expertise of more than 60 cancer and cancer-related specialists on the Charles River and Medical Center campuses; its activities are supported by a Cancer Center support grant from the National Cancer Institute, and it serves as the focal point for more than $4,220,000 annually in grants and contracts for cancer research, clinical care, and education.

Cooperband named director. The CRC formally came to life in January, 1974, when the president and trustees of the University approved the CRC charter and the selection of the Center's director, Sidney R. Cooperband, M.D., a professor of microbiology and medicine. The charter set forth the CRC's ambitious objectives as follows:

"—To stimulate and support goal-oriented multidisciplinary programs in cancer research in the basic and clinical sciences involving all relevant departments at the University;

"—To encourage and accelerate the application of research results to patient care, including physical, social, mental, and occupational rehabilitation involving services reaching out into the community, and

"—To extend the results of research to hospitals, the medical schools, the dental schools, and other institutional and training programs at a level of intensity appropriate to the mainstream of educational activities in the Medical Center, at the University, and in the community."
activities in cancer education, clinical care, and research bridging the School of Medicine, the School of Graduate Dentistry, and University Hospital. Many of these activities are also linked firmly to programs at the University's Charles River campus, in the Departments of Mathematics, Biology and Chemistry of the College of Liberal Arts and in such diverse schools as Nursing, Theology, Social Work, Law and the Sargent College of the Allied Health Professions. But the CRC has also established strong ties with community health institutions in both clinical care and education through a Regional Oncology Program. And in line with its mandate to extend the results of its research to patient care and education, the CRC is cooperating with area medical schools and health institutions.

An example of this cooperative effort is the CRC's membership on the Regional Cancer Control Committee under the aegis of Boston's Sidney Farber Comprehensive Cancer Center. This cooperative effort is more than a year old now, and includes the submission of a joint Cancer Control Grant application in concert with Tufts-New England Medical Center, Massachusetts General Hospital, and the Farber Cancer Center. The proposal has been approved, and funding began as of June 1, 1977. It supports the Regional Oncology Program and other similar programs at the other cooperating institutions.

**A magnet for talented professionals.** The creation and development of the CRC, culminating in the Multidisciplinary Cancer Center designation by the NCI in November, 1976, has not only stimulated new activities on the part of cancer specialists at the Medical Center, but has served as a magnet for a number of other talented professionals. The CRC, working with the medical school's deans and department and division chairmen, has been instrumental in the hiring of 15 new full-time faculty members for positions in otolaryngology, medicine, surgery, biochemistry, microbiology, pathology, socio-medical sciences, radiotherapy and statistics.

The impact of the Cancer Research Center's members on education and training has been significant in recent years through the stimulation and coordination of multidisciplinary research and investigation projects. That accomplishment will become evident to the reader in the pages that follow, through articles that highlight some, but certainly not all, of the cancer activities at the Medical Center, the University, and in the community.

In its commitment to organize and stimulate the faculty, to improve their ability to diagnose cancer,
treat it effectively, and eventually control it, the CRC has set for itself a number of specific tasks, and has designed programs to carry them out:

— The Center coordinates and integrates the basic research programs of scientists within the Boston University family;
— it recruits, stimulates and guides scientists and clinicians to form cancer and cancer-related interdisciplinary research groups;
— it seeks to encourage the rapid expansion of these joint research groups so that the communications between bench scientists and patient-oriented physicians will lead to the application of laboratory research results to clinical practice at an accelerated rate;
— it works to spur the development of new programs, pilot studies, and demonstration projects in cancer research, diagnosis, treatment, education and service;
— it encourages, lends aid and support, and seeks to integrate community programs in all aspects of cancer management;
— it communicates approved new developments in cancer diagnosis, therapy and rehabilitation to the community and to affiliated institutions;
— it develops and disseminates information related to cancer epidemiology in the region, in affiliated hospitals and in the Medical Center in order to evaluate and improve the modalities of cancer diagnosis, treatment and control;
— it develops programs to continue improvement in the training and education of students, established physicians, and allied health professionals.

More than 60 members. In its four years of planning and seven months since designation as a national Cancer Center, the CRC has developed a membership of more than 60 cancer specialists involved in a broad variety of research, teaching and service functions.

In addition to its planning and Cancer Center support grants, the CRC and its members have initiated a number of large multidisciplinary program grants from the National Cancer Institute, the American Cancer Society, and private foundations, including the following: new approaches to tumor immunotherapy; a multidisciplinary approach to head and neck cancer; cellular kinetics of clinical cancer chemotherapy; determination of optimal screening frequencies for early detection of cervical cancer; measurement of the cost of cancer care; etiologic and prognostic factors in breast cancer; and lipid nutrition and cancer. Training grants which members of the CRC have received from the NCI include the Center’s enterostomal therapy education program and the oncology nurses’ training program located at the School of Nursing, a clinical cancer training grant, and training in oncologic immunology at University Hospital and the School of Medicine.

As mentioned above, the CRC has been involved in the preparation and review of 56 grants instituted by independent investigators. More than 70 funded projects are now under way.

Wide spectrum of research interests. In the area of research interests, CRC members are active in a wide spectrum of cancer-related areas. Groupings, by interests, are in basic tumor immunology, chemical and environmental carcinogenesis, endocrine aspects of cancer, nutrition and cancer, tumor cell biology, tumor cell kinetics, clinical and basic pharmacology, tumor virology, and cancer epidemiology.

Teaching activity by members of the CRC ranges through the undergraduate, graduate and postgraduate levels. On the undergraduate level, CRC staff take part in education courses in 11 of the 15 schools that make up the University, in addition to the School of Medicine. Additional cancer-related teaching is carried out by faculty of the various schools who are not on the CRC staff. After surveying all undergraduate education at the University that may be related to cancer, the CRC has offered to provide expert assistance to a number of courses on an “as-needed” basis. Examples of CRC involvement in the undergraduate programs may be seen in Sargent College, which offers a brief course on cancer diagnosis and rehabilitation; in the School of Nursing, which offers a block on special nursing problems with cancer patients; and in the School of Social Work, which has a course on loss, grief, and emotional reactions to body deterioration.

On the graduate level, cancer-related subjects are also taught in a number of the schools of the University: Nursing offers two graduate-level courses; Sargent College, the School of Theology, and the School of Graduate Dentistry all have one course on the graduate level. The School of Medicine has a broad offering of courses in which the cancer content has been enlarged.
and strengthened through the participation of the CRC's Education Committee. In addition, there are a large number of clinical clerkships and electives in surgical, medical and radiotherapeutic oncology, and in many basic science labs.

**Meetings, conferences, seminars.** On the postgraduate level, there are educational opportunities for resident house staff and staff physicians through tumor board meetings, tumor conferences, cancer seminars, and tumor pathology conferences, all held weekly, and through the biweekly oncology staff meetings, and the annual visiting professor program.

Nursing staff education and training opportunities are provided through nursing oncology workshops at University Hospital and in affiliated hospitals, and in a nursing oncology lecture series offered 20 hours per year in outreach and affiliated hospitals.

Continuing education for practicing physicians is available through the CRC's outreach program: Tumor boards and tumor conferences are held in outreach hospitals on a biweekly or monthly basis; tumor clinics are held weekly or biweekly; cancer seminars are presented bimonthly or three times a year; specialized block courses are offered once a year.

In the area of clinical investigation, the CRC's programs are conducted primarily at University Hospital, Boston City Hospital and the Boston Veterans Administration Hospital and, to a lesser extent, through the more than 20 affiliated community hospitals. The center of this clinical activity is on University Hospital's two specialized cancer patient floors—the Medical Oncology unit of 40 beds and the Surgical Oncology ward of 30 beds. More than 1,200 new cancer patients are seen at the three hospitals per year.

**Clinical research includes chemotherapy.** Clinical cancer investigation includes new methods in the use of drug chemotherapy, utilizing a basic understanding of tumor cell kinetics; adjuvant tumor immunotherapy in cooperation with the basic immunology group; the effect of nutrition on cancer; endocrine therapy for breast and ovarian cancer in cooperation with the basic endocrine groups of the Department of Biochemistry; adjuvant chemotherapy for lung cancer; urological cancer studies; chromosomal research of malignant cells; hematological cancers and the possible use of bone marrow transplantation; and the development of new pharmacological agents. There is extensive cooperation between the clinical and basic research groups in developing new protocols and treatment regimens.

In addition, the medical, surgical and radiotherapy groups participate in national cooperative group studies in chemotherapy with the Eastern Clinical Oncology group, the National Surgical Adjuvant Breast group, the Radiotherapy Oncology group, and specialized groups interested in prostate and bladder cancer. These groups place patients from different institutions on a common protocol of treatment so a large patient population can be treated at the same time and the results tabulated and analyzed by a central data management group which speeds the process of evaluating new drugs and treatment plans.

The two cancer patient floors are staffed with experienced and specially trained oncology nurses and oncologic specialists; cancer patient management is a cooperative and multidisciplined effort. Their approach includes taking care not only of the patient, but also of the family, for cancer affects everyone associated with the patient. Thus, the team includes radiotherapists, medical and surgical oncologists, psychiatrists, nurses, social workers, theologians, and many other allied health professionals. Finally, the many specialists available at the Medical Center and Cancer Research Center provide expertise to cope with any difficult problem.
Seeking the answers

The research efforts of CRC members

Cell surface may yield clues to mystery of uncontrolled tumor cell growth

by Lorraine Loviglio

WHEN a normal cell is transformed into a cancer cell—whether because of exposure to chemical carcinogens, cancer-producing viruses, X-rays, or other agents—it acquires certain characteristics, the most striking of which is loss of the ability possessed by normal cells to stop multiplying at the appropriate time. When you cut your finger, the cells surrounding the wound begin to divide more rapidly to heal the wound. When the incision has been covered over with new skin and tissue, the cells stop multiplying. They know, somehow, when to stop.

Cancer cells don’t know when to stop. They continue to multiply out of control, piling up on one another and forming a tumor. Further, they invade surrounding normal tissues, and can migrate to distant sites in the body through metastasis.

Information comes through surface. The braking effect on cell multiplication that occurs when normal cells make contact with surrounding cells is called contact inhibition, and this process, along with other kinds of cell-growth controls, is thought to be mediated in some way by the cell surface. Frederick L. Moolten, M.D., an associate professor of biochemistry and associate director of the CRC, explains: “We don’t know what causes a normal cell to stop growing, but we think the cell surface may play a quite crucial role. After all, the cell receives information, including controlling influences that might come from outside, through its surface.”

Consequently, Moolten explains, a great deal of scientific interest has focused on the possibility that tumor cells behave abnormally because their surface is altered. That the surface of tumor cells is indeed altered is supported by an abundance of evidence. The problem lies in the fact that, to date, no single alteration has been found to be universal in tumor cells, and it is not yet clear which alterations may play a role in causing the cell’s uncontrolled growth, and which may be simply secondary effects.

In a recently completed study of the carbohydrate molecules that are associated with the cell surface, Moolten and his associates found differences in carbohydrates between normal and tumor cells. “Certain carbohydrates which were part of the membrane of the normal cells were produced in much smaller amounts by the tumor cell,” Moolten explains. “What one has to try to do with these and other changes found in tumor cells is to find some way to determine whether they are the cause of the abnormal behavior of these cells.”

Whence the misbehavior? In another, ongoing study, Moolten’s laboratory is looking at changes in the cell’s ability to take up materials from its environment. In an effort to elucidate what Moolten calls “the mechanisms by which tumor cells misbehave,” the researchers are studying in particular the ability of the cell surface to transport sugars from outside to inside the cell, since evidence has been found that tumor cells usually take up sugars, like glucose, at a faster rate than normal cells. What they hope to find is that this change may somehow be related to the cell’s uncontrolled growth. What they have, in fact, found so far seems to indicate that it is not the sugar uptake itself, but the membrane

Asher D. Kelman, M.D., Ph.D., a key research member of the CRC and an assistant professor of microbiology, and graduate student Steve Edmonds observe the effects of platinum complexes on DNA.
change of which the sugar uptake is only a reflection, that is probably the crucial factor.

"We think that the membrane change which is reflected in increased sugar uptake probably does a lot of other things also, and it is some of these other things which may be crucial to the development of a tumor," Moolten says.

As to what actually triggers the transformation of the cell in the first place, Moolten believes that the most important way in which human tumors arise is probably as a result of exposure to chemicals. "Some people believe that chemicals may activate viruses to cause cancer, but I don't think it's necessary to invoke that complicated a mechanism, in most cases. I think we can assume that, in most cases, the chemicals act on the DNA of the cell to cause a mutation. This change in the hereditary properties of the cell causes a change in the behavior of that cell and of all its progeny."

**No evidence of direct link.** What is not known is exactly what the change consists of and what cellular functions are primarily affected by it. "We can speculate, for example, that maybe in some cases what is changed is the DNA that controls certain aspects of the cell surface," Moolten continues. "We don't have evidence for a direct link between the causal agent in a tumor—whether it be a chemical, a virus, X-rays, or something else—and the specific changes that have been observed biochemically, like changes in the membranes.

"We haven't completed the chain of evidence linking the agents which cause tumors to the observed results of uncontrolled behavior. We know what some of the things that cause tumors are. We know what the final result is. We have some observations along the way. What we have to try to find out is whether these observations are really the crucial ones." 

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**Ryser group studies the way materials move by pinocytosis, hoping to pinpoint difference between normal, tumor cells**

THE process by which large molecules move from outside the cell, across the cell membrane and into the interior of the cell itself, and what happens to those materials once they are inside the cell, might provide a clue to the fundamental differences between the surface of a cancer cell and that of a normal cell, according to Hugues J.-P. Ryser, Dr. Med., a BUSM professor of pathology and pharmacology and a CRC member.

Attention to such molecular processes is extremely important in cancer research, Ryser maintains. "One of the major problems in cancer research is to find a basic difference between normal cells and tumor cells," Ryser says. "That has been the wish, the hope, the drive of, let's say, 80 percent of cancer research."

**Process could mean much to chemotherapy.** Elucidation of this particular molecular process, called pinocytosis, can help scientists develop a tool for determining these basic differences, and the process itself can also be employed as a means for administering therapeutic chemicals within the cell, Ryser says.

Water, nutrients and other elements can flow freely, or diffuse, into normal cells and tumor cells alike. These materials, he explains, are small molecules and compounds. Ryser is studying the ability of certain macromolecules—substances that could be thousands, or perhaps millions, of times the size of the small molecules—to cross the membrane into the cell as well.

In the pinocytotic process, a macromolecule attaches to the outer surface of the cell membrane. At that point, a small pocket, or crypt, begins to form around the macromolecule on the interior of the surface as the macromolecule moves across the membrane and inside the cell. In almost all cases, at the end of the several-step process, the macromolecule is broken up and is released, as bits and pieces, into the interior of the cell.

Pinocytosis is significant, Ryser says, because scientists have determined that certain substances can be "complexed" as Ryser puts it, with the macromolecules that are known to be taken up by the cell. Through this piggybacking of substances, scientists can introduce whatever materials they want directly into the cell. **Permits low drug concentration.** Chemotherapy is one important practical application of this principle.
Sidney R. Cooperband, M.D., director of the Cancer Research Center, discusses some research results with Elinor Levy, Ph.D., a member of the CRC and an instructor in microbiology, while graduate students John Corverse (left) and Michael Allen (right) listen. Levy is doing experiments to purify some of the cells involved in immune regulation, particularly the M cell.
Microscopic slide shows bladder tumor (lower right) invading small blood vessel. Cells about to detach at edge of tumor illustrate one of mechanisms by which cancer can spread: once the tumor cells enter the bloodstream, they can be carried to a distant part of the body, where they may lodge and begin to grow another tumor.

Because the chemotherapeutic agents are introduced, along with certain macromolecules, directly into the cell, Ryser explains, the concentration of the free drug administered can be relatively low, since the drug is working from within the cell itself. This type of chemotherapy has been used in both animals and humans.

Ryser is interested in determining what factors will increase the penetration of macromolecules into the cell. He has already determined that a strong positive electrical charge in the macromolecule, the size of the macromolecule, and the way certain macromolecules tend to "fit" particular areas on the cell surface all have this effect.

Ryser explains that he and his colleagues have isolated some differences in the responses of normal cells and of tumor cells to the same stimulus. "However," he says, "these differences are not across the board. We are looking for differences in membrane properties that are constant."

Ryser is also working with Albert L. Politoff, M.D., an assistant professor of physiology at BUSM, on causes for cell division, and particularly the role the electric membrane properties play in this process. "Something must happen for a cell to divide," Ryser comments. "There must be a trigger. This question is of fundamental importance since cancer is, after all, a disease of uncontrolled cell division."  ■ N.H.
Immunotherapy's anti-cancer value is still unproven, but studies give rise to important new understanding

by Susan Gertman and Lorraine Loviglio

Scientists have long been puzzled by an apparent short-circuit in the body's cancer-fighting mechanism: Why does the immune system, so successful in protecting against infection, fail to recognize a tumor as a foreign substance and reject it?

Scientists in the developing field of tumor immunology and its clinical branch, immunotherapy, are trying to combat tumors by manipulating the immune system to enhance its ability to kill cancer cells. "The conundrum in tumor immunology is that tumors grow despite the fact that there is host immunity," says Sidney R. Cooperband, M.D., director of the Boston University Cancer Research Center. "No one has ever fully understood this. What is crazy about the whole thing is that tumors somehow evade immunity."

Not just one system. A breakthrough in immunology occurred with the discovery that immunity is not one, but at least two, and possibly three or four systems working together. One system, called humoral immunity, protects against infection by producing antibodies. Antibodies, however, do not kill many tumor cells, if they kill any at all. In fact, according to Cooperband, a professor of medicine and microbiology at BUSM, they act in some circumstances to enhance tumor growth.

A second system, known as cellular immunity, is capable of rejecting tumor cells by producing substances called T-lymphocytes, or T-cells, a sub-group of white blood cells. Recently other reactions that are neither of these two have been discovered.

"For example," Cooperband explains, "macrophages (large white blood cells that engulf and consume foreign bodies and debris) appear to have the ability to kill tumor cells directly, and there now appears to be coming out of research at the Cancer Research Center recognition of yet another system for rejecting tumor cells that are present in the bone marrow, the so-called M-cell" (see story elsewhere in this section).

Studying the ways in which tumors evade immunity, and attempting to block them, are among the most important activities of Cooperband's lab. One way tumors evade immunity is by provoking an antibody response that tends to block the ability of the host to reject tumor cells. A second way appears to be by producing or stimulating regulatory cells which act to shut off the immune response. These so-called T-suppressor cells are part of a complex regulatory mechanism that normally prevents immunity from running amok by shutting off the immune response after it reaches a certain optimum level.

Immunosuppressive factors. The third way is by producing humoral factors—factors that circulate in the blood—which inhibit the ability of the cells to kill tumor cells. One of these immunosuppressive factors produced by cancer cells was discovered in Cooperband's laboratory, and is still the subject of major investigation. Cooperband and his associates discovered in the blood of cancer patients, and in the fluids that bathe tumors, there is a substance that inhibits the ability of T-cells to kill tumors. The scientists are currently in the process of isolating and purifying that factor and attempting to learn where it comes from. They will then attempt to find a way to inhibit its suppressing activity, thus allowing T-cells to do their job of knocking out tumor cells.

"It may well be that everyone develops cancer, but only those cancers that develop a mechanism for suppressing immunity continue to grow, while those that don't are wiped out by the person's normal immune reaction," speculates Cooperband.

Although antibodies are not effective in killing tumor cells, they can be made effective if they are modified in such a way that they carry a killer substance. Frederick Moolten's modified antibody (described elsewhere in this section) has been able to cure animal leukemias. Cooperband, in collaboration with Peter Deckers and Stanley Leong, is currently extending that methodology to a human cancer system, malignant melanoma. They are isolating tumor antigens from the surface of melanoma cells as a preliminary to making an antibody to those antigens. The antibody will be linked to diphtheria toxin, a very potent killer molecule, which will then be used to treat melanoma patients who have microscopic metastases. However, the daring new therapy won't be ready for use on patients for a number of years, Cooperband predicts.

Since antibodies can block the action of T-lymphocytes in attacking tumor cells, there is reason to think
that if one removes anti-tumor antibodies, one may enhance the host's ability to destroy his tumor cells. In a system currently being developed by Richard Rome, a medical student working with Cooperband, blood from the host would be taken out of the body and passed over a plastic surface containing tumor antigens. Using malignant melanoma as an example, Cooperband explains the procedure: "One isolates the purified antigen from the melanoma cells and then chemically links it to a plastic surface—in this case, a series of small tubes—so that the plasma passes over the surface of the tubes. As the circulating antibodies in the blood pass an antigen that they recognize, they grab hold of it, as they would when they pass a tumor cell. On a tumor cell, they block the surface antigens so the lymphocytes can no longer see them and understand that there is a foreign antigen. As you remove antibodies from the bloodstream, the ability of antibody to bind on the tumor cell surface is markedly reduced, and therefore T-lymphocytes can now find and see that surface antigen and attack it."

**The use of adjuvants.** Immunotherapy procedures, the newest branch of clinical cancer care, may work to stimulate one immune system, while they suppress another that is counter-productive. One method of stimulating immune reactions is by administering drugs, called adjuvants. "The hope is that if the patient has some immunity to his tumor and is given an adjuvant, one that will stimulate cell-mediated immunity more than humoral immunity, then the therapy will augment the patient's own immunological reaction to the tumor," Cooperband explains.

Three substances are currently under investigation at the Cancer Center, although none thus far has demonstrated a significant ability to prolong survival of cancer patients. They include two bacterial adjuvants—BCG, a live tubercle bacillus, and C. parvum, a bacteria that stimulates bone marrow growth—and a chemical agent, levamisol.

The tubercle bacillus used in these experiments is a modified and less pathogenic form of the bacteria that causes tuberculosis. Once a patient receives a BCG injection, the body produces an intense immune reaction that kills the bacteria and stimulates the production and activity of T-cells. BCG was first used in human studies at the Pasteur Institute in Paris, where it resulted in prolonged survival in patients with myelocytic leukemia. However, only one other institution has had similar results.

**The use of C. parvum.** C. parvum is being used in a University Hospital trial in patients who first undergo radiotherapy. Since radiotherapy depresses bone marrow production, C. parvum has the dual advantage of stimulating cell-mediated immunity as well as encouraging bone-marrow growth. The bone marrow manufactures white blood cells, themselves part of the host's resistance to cancer.

Levamisol, first used to treat worm infestation, has been found to stimulate production of tumor-killing lymphocytes in patients with severe cancer. Two levamisol studies are about to begin at University Hospital: one involves patients with advanced lung cancer; the other, patients who recently have undergone cancer surgery.

The development of immunotherapy with adjuvant drugs is moving toward specific drugs that act upon T-cells, such as levamisol, and away from non-specific adjuvants, such as BCG and C. parvum. Cooperband comments: "As our knowledge of drug adjuvants becomes more sophisticated, the therapy will become more effective. The advantage of adjuvants is that you just have to give patients a shot or a tablet and it's a standardized therapy; it's a mode of treatment that does not involve any separate technology."

Several immunotherapy investigations in animals and man that do involve the development of new technology are currently under way at the Medical Center. They include:

- Transfer factor, a name for a substance extractable from blood lymphocytes of an immune donor which confers immune reactivity on a non-immune recipient.
- Exposing T-cells to ribonucleic acid. In this procedure, RNA from the lymphoid tissue of an immunized rabbit is extracted and incubated with blood cells from a patient with cancer. The blood cells pick up the immune information that is present in the RNA, and are rendered immune. The cells are then rein infused into the patient.

**Much still to be done.** Cooperband compares the progress of immunology so far with the early history of chemotherapy. "What's happening with immunotherapy is that there now seems to be a slight prolongation of survival, but, with rare exceptions, no cures. The early experience with chemotherapy was almost the same—early reports were very dramatic about prolongation of life, and then, as people started using it in all kinds of tumor systems, they had very disappointing early results. As more combinations of drugs came into play, and as the tolerance for more drug-induced toxicity was increased, the symptom-free intervals, or remissions, got longer." Now, of course, chemotherapy is recognized as being able to extend survival in many cancers, and in a limited number of cancers, to effect a cure.

"The trouble is," Cooperband says, "we don't have all the pieces of knowledge about the interrelationships between tumors and the host's immune response. Almost every day, people are discovering other immunologic effects, other regulatory mechanisms, other cell involvements in immunology which have never been fully understood before.

"In the long run, I think tumor immunity will play a major role in treatment of cancer. But it will take years."
Bennett identifies M cell: guardian against leukemia and killer of tumor cells

A newly discovered group of immune cells, identified by CRC researcher Michael Bennett, M.D., in 1973 and already demonstrated to be effective in surveillance against leukemia, may hold the key to the deepening riddle of cancer's complex relationship with immunity.

The cells, called M cells because they depend on the bone marrow for their differentiation, are distinct from the other lymphocytes—the T cells, B cells, and macrophages—already known to make up the cellular components of the body's immune system. They may or may not be related to the macrophage system, according to Bennett, who is an associate professor of pathology.

**Specifically kill tumor cells.** M cells include a group of cells called natural killer cells, which arise naturally, without immunization, in humans and animals, and which specifically kill tumor cells without killing normal cells. Bennett explains, "We all have these cells, which are neither T cells nor B cells nor the usual type of macrophage, and they are able to kill tumor cells *in vivo* as well as *in vitro*.

M cells appear to be specifically toxic for primitive cells, and, since tumors usually arise from the more primitive elements of a given tissue, "it may be that these cells are much more important than the classical T cells and B cells," Bennett believes.

Bennett had been working since the early sixties with Gustavo Cudkowicz, M.D., a pioneer of bone marrow transplantation at State University of New York in Buffalo, studying the mechanism of the rejection of bone marrow allografts (grafts of tissue taken from a donor of the same species as the recipient). In 1973, he discovered that if he administered strontium 89 to mice, they lost the ability to reject bone marrow allografts, but still had T cells, B cells and macrophages. From this he deduced the existence of another immunocompetent cell, one that was responsible for the allograft rejections, and that failed to develop when the bone marrow was destroyed. He called it the M cell.

Using animal models, Bennett has found that eliminating M cells makes animals much more susceptible to leukemia induction by viruses. Eliminating T cells or B cells or macrophages, on the other hand, does not change the susceptibility to leukemia significantly. "At least experimentally, the M cell is very important in surveillance against leukemia," Bennett concludes.

**Controls immunosuppression.** One of the effects of the leukemia virus is to profoundly suppress the immune system of the host, through the agency of T suppressor cells—thymus-dependent cells which function to suppress immune reactions rather than to augment them. Bennett and his colleague, Vinay Kunar, M.D., discovered that the M cell, in addition to its role in surveillance against leukemia virus, also controls this process of immunosuppression, by regulating and limiting the numbers of T suppressor cells in the body. Thus, by preventing the suppression of the immune reaction through T suppressor cells, the M cell has the added beneficial effect of allowing the T cells and B cells to function against the cancer cells, too.

The long-range aim of Bennett's research is to develop a way to treat neoplasms—"leukemia would be the most logical one, but we'll also include solid tumors"—by treating with total body irradiation, with or without chemotherapy, to eliminate the tumor as much as possible; then to repopulate the immune system of the tumor-bearing or leukemic patient by means of a bone marrow transplant from a donor who is genetically resistant.

Bone marrow transplants are currently being done for acute leukemia, and at one center with considerable
experience in this procedure, according to Bennett, “ap-
approximately 30 percent of the patients are being cured,
whereas normally, using chemotherapy, you would be
lucky to get 8 or 10 percent.” However, bone marrow
transplantation, at present, is a dangerous procedure;
not only does it render the patient susceptible to infec-
tion, but it can also lead to a graft-versus-host syn-
drome, in which the donor bone-marrow cells, as they
grow in the host, react as if the host were foreign and
attack him, sometimes with fatal results. Solutions to
these problems are currently being sought by
researchers.

Cancer-causing agents studied. Until recently, most
of Bennett’s research has involved virus-induced cancer.
Recently, he received a new grant to study the develop-
ment of chemically induced cancers, specifically the
relationship of immunity to the development of precanc-
erous changes in very young animals whose mothers,
while pregnant, are given cancer-causing agents. Recent
evidence tends to suggest, Bennett points out, that can-
cer may be related to changes that occur long before the
disease develops. In the new study, after giving car-
cinogens to the pregnant animals, Bennett will study the
mother animals and their offspring as cancer develops
in the animals, while paying particular attention to the
immune system and the role of the M cell.

“This is a way to see, in chemically induced tumors,
whether the immune system is important or not,” Ben-
nett explains. “And the big advantage of the
transplacental approach is that you can separate in time
the administration of the carcinogenic agent and
manipulations of the immune system,” because the im-
une system develops in the infant animal at least
several weeks after administration of the transplacental
carcinogen.

Even after it was discovered four years ago that a cell
existed that depended upon the marrow for its differen-
tiation, interest in the new M cell was limited. However,
with the realization that M cells are critical in function-
ing against leukemia, and also that they include natural
killer cells for neoplastic cells, interest in M cells has
begun to develop very rapidly, especially in the past
year.

“A lot of investigators are now turning their labs
over to the study of natural killer cells,” Bennett ob-
serves.

Immune system’s importance. On the other hand,
some scientists—even a number of immunologists—
believe that tumor immunology doesn’t have much to
offer against cancer. Bennett disagrees. “I think that the
immune system is important, but that it starts with the
problem of the M cell.”

There are, however, difficult problems to be solved,
Bennett concedes. “Every time we learn about a new
type of antitumor immune cell or antibody, we also
learn that the tumor cell knew about it long before we
did, and has figured out a way to escape. That is
definitely a problem, a big problem.”

Platinum compounds studied in search for more effective,
less toxic cancer treatment

LATINUM, a precious metal perhaps most often
associated in the public mind with wedding rings,
is the subject of studies at the CRC aimed at un-
derstanding and exploiting its potential value as an ef-
fective anticancer drug.

Research conducted elsewhere in experimental
animals and with small numbers of patients has
demonstrated that certain platinum compounds can be
effective against cancer, but have side effects that in-
clude possible kidney damage and severe nausea. At
BUMC, Asher Kelman, M.D., Ph.D., an assistant
professor of microbiology and CRC member, is at-
ttempting to determine the molecular basis for the ant-
cancer effects of these compounds in order to devise
more effective and less toxic analogous drugs for use in
treating cancer patients.

“We feel pretty certain that platinum acts by attack-
ing the chromosomes of tumor cells, by linking together
adjacent bases of DNA and also by linking together the
two complementary strands which constitute DNA,”
Kelman explains.

Duplicating DNA. In order for a cell to divide, the
DNA must be duplicated, so that each new cell will
have its own complement of genes. To accomplish this,
each strand of DNA must be separated and then copied
to produce two double strands. “If the strands cannot
come apart because of drug action, then there’s inter-
ference with DNA duplication,” Kelman explains.

Since platinum appears to make tumor tissue more
sensitive to radiation damage, Kelman’s group is also
investigating the possible benefits of combining
platinum drug treatment with radiation therapy.

In a related study, Kelman and his coworkers are
studying platinum drugs and their effectiveness against
herpes-virus-infected cells. They are attempting to pre-
vent the herpes virus from multiplying by using
platinum compounds to alter the structure of its nucleic
acid. The platinum drug he is working with is known to
be selective for attack on DNA; the chemical composi-
tion of herpes virus DNA, because it is particularly rich
in certain chemical bases, is such that it is likely to be
very sensitive to inactivation by platinum drugs.
Sidney Kibrick, M.D., Ph.D., aims his research at the possible link between viruses and cancer in humans.
What role do viruses play in cancer in humans? Kibrick and Kelman attempt to discover the link

BEGINNING in 1911, when Peyton Rous produced a malignant tumor in a chicken by injecting it with a filtered extract of a tumor from another chicken, the fact that viruses cause cancer in animals—from birds and frogs all the way up to mammals, including monkeys—has been well established by researchers.

In spite of intense research activity, however, scientists still have not come up with unequivocal proof linking viruses with cancer in humans. Evidence, in man, must be indirect. One of the difficulties of establishing a viral etiology of cancer in man is that one obviously cannot do to a human being what Rous did to the chicken. The evidence, when it comes, must be indirect. Another difficulty, points out Sidney Kibrick, M.D., Ph.D., arises from the possibility that viruses may not be specific for cancer, but may, under appropriate conditions, and in an appropriate host, produce malignancy years after an initial infection.

"The incubation period between the infection and the malignancy may be so long that it is very difficult to associate the virus with the malignancy," explains Kibrick, a professor of microbiology and pediatrics and associate director of the CRC for biohazards.

Asher Kelman, M.D., Ph.D., an assistant professor of microbiology, adds, "Some cancers may be caused by an ordinary infectious disease which, in 99.9 percent of the cases, does not have a neoplastic outcome. But 20 or 30 or 40 years later, people with the right genetic predispositions, the right cofactors that have occurred subsequently—and bad luck—will get cancer."

One virus suspected of such a delayed-action role is the virus responsible for cold sores and fever blisters, the herpes simplex virus. Kibrick explains that, once infected with this virus, a person carries it, very likely, for life. As illustration he cites the common sun blister.

Remains, in noninfectious form. "The sun doesn't give you the blister; the virus does," Kibrick points out. "It apparently has the ability to traverse the sensory nerves from the site where the initial infection was acquired and it ends up in the sensory ganglia, which lie just outside of and connect with the sensory portions of the spinal cord. The virus remains there in noninfectious form, and then it responds to various stimuli—fever, colds, the sun."

Another member of the herpes virus group that can lie in wait inside the cells until the circumstances are right for a repeat performance is chicken pox, which can recur years later, in a person who has lost most of his initial immunity, as shingles.

It has long been noted by epidemiologists that certain characteristics of cervical cancer strongly imply that it might be caused by an infectious agent. Most strongly implicated, on the basis of a variety of evidence, is the herpes virus.

"Herpes and carcinoma of the cervix have a number of epidemiological features in common," Kibrick states. "But the evidence indicating that one is unequivocally responsible for the other is still the million-dollar question."

A search for evidence. Work in Kibrick's laboratory is directed toward the search for some evidence that herpes virus is involved in malignant or premalignant cervical tissue. Specifically, Kibrick, Kelman and their colleagues are looking inside cancer cells either for genetic material of the virus or for some sign that this material is being expressed—what Kelman calls the "fingerprints" of the virus.

Viruses are, in effect, tiny bits of genetic material surrounded by a protective coat of protein. When they multiply in a cell, they must not only reproduce their own genetic material, but also manufacture protein material to furnish the coat. Traces of these viral proteins are the clues to the presence of the virus in cancer cells that the BUSM researchers are seeking.

"From the results we've gotten so far, we believe that a number of cervical cancers do, in fact, have evidence of herpes virus having been there at one time or another in the cells," Kelman says. Pinning down a culprit. In their discussion of the role of viruses in cancer, both Kibrick and Kelman emphasize the interplay of various causative agents and the difficulty of pinning down a single culprit.

"Viruses are really strings of genes, and a very simple way of altering the gene content of the cell, as you must do if you are to change a normal cell to a cancer cell, is to simply bring in new genes," Kelman points out. "But we know we can alter the existing gene by ingesting carcinogens, by solar radiation, X-rays, and so on. We don't know what the combination is. We do know there is overwhelming circumstantial evidence that viruses play important roles in carcinogenesis in man."
Relationship between breast cancer and hormone imbalance focus of 2-pronged $1-million study

by Cynthia Carter

The theory that hormone imbalance, particularly during the childbearing years, is related to the development in later life of breast cancer in one out of nine women is currently being studied by researchers at the Cancer Research Center.

If such a relationship could be proved, it would lead to the possibility that simple screening, followed by treatment with the appropriate hormone, might prevent cancer from developing. This theory is being investigated as part of a three-year study funded by more than $1 million in grants from the National Cancer Institute.

Herbert H. Wotiz, Ph.D., a professor of biochemistry at the School and an associate director of the CRC, is principal investigator of a $490,000 study of the effect of female hormones on the development of breast cancer in animal models, and hormone balance and follow-up treatment of women who have undergone mastectomies. He will conduct these studies with James C. Melby, M.D., a professor of medicine and physiology.

In another aspect of the study, Wotiz will work with Marc J. Straus, M.D., an associate professor of medicine and chief of the University Hospital Section of Medical Oncology. Straus is principal investigator of the three-year, $650,000 study, which, among other things, seeks to help physicians determine which mastectomy patients will respond to hormone treatment of recurring tumors. He is associate director of the CRC for clinical research.

Could lead to screening method. If this concept of the etiology of breast cancer can be sufficiently verified to make it acceptable to the scientific community, Wotiz said, one could conceive of screening all young women, especially those coming from cancer-prone families, to test for a proper balance of the two female steroids: estradiol, the active hormone, and estriol, an anti-hormone, which is antagonistic to the former.

A variety of data suggests that when the balance of these two steroids is in favor of estradiol for a long period of time, the risk of breast cancer at menopause is increased. It is possible to determine from testing what the ratio is; if there is not enough estriol, it may be possible to treat women periodically with the anti-hormone—which has been proven to be safe, even if given in large doses—and perhaps prevent cancer in the future.

The study could also help the many women who do not respond to hormone treatment after mastectomies. If it can be determined, by examining tissue, that a patient will not respond to hormonal treatment, then that treatment may be eliminated, saving the patient from unnecessary delays in the initiation of proper therapy.

"If we can verify that hormone imbalance is one of the bases for formation of tumors, then we have the means of preventing the formation of cancers in some women at least," says Wotiz. "Breast cancer is so prevalent that if we are even 10 percent successful, this study will have had a major impact."

Can one's own voice betray the presence of cancer? Studies of flow of air in vocal tract may be key

The smoke from his own cigarette led BUSM research professor Herbert M. Teager, Sc.D., to a notable discovery about the way the human vocal tract works, a finding that could become the basis for a method of using the voice itself as an early detector of cancer.

Teager, who has been studying the voice for more than five years and the ear for about 15, found that the smoke he exhaled was a good example of "separation," a concept he had worked with for some time. The existence of this extended site for sound production provides the basis for a diagnostic tool for cancer and other abnormalities, he maintains.

Where sound is generated. Scientists, Teager explained, have long assumed that speech is produced by uniform, or laminar, air flow. But Teager, following through on his cigarette-smoke observations, thought the air flow in the vocal tract might be separated to form an unstable jet. "If this were true," Teager says, "it would mean you generate sound not just at your larynx, but all the way up the vocal tract as well." The existence of this extended site for sound production provides the basis for a diagnostic tool for cancer and other abnormalities, he maintains.

It is a principle of physics that fluid or air flowing through any sort of constriction or making a change in direction produces separation.
Teager, who is head of biomedical engineering in University Hospital's Evans Department of Clinical Research, uses ocean currents as an illustration to explain separated flow. "At the surface of the ocean," Teager says, "you have the current going in one direction, and down below, you can have currents moving in entirely different directions."

His theory about the vocal tract proved valid. Using tiny hot-wire anemometers inserted into the mouth and throat, Teager located a separate "jet stream" in the air flow, and measured how different speech sounds changed the direction of the flow. Ninety percent of the air flow was exhaled in about 10 percent of the available cross-sectional space.

"This jet," Teager explains, "is very sensitive to the conditions around it. When it goes past a cavity in the mouth or the throat, it will interact with that cavity, and change its flow pattern. Similarly, when it comes close to a wall, it will interact with that wall."

**Sounds and directions.** The jet stream, Teager says, changes direction, depending upon the vocal sound the person is making. "'Uh' sounds and 'ah' sounds are due to the jet's deflection in perpendicular directions."

"Because you are making sounds all the way through your vocal tract by changing the direction and amplitude of this jet stream, the condition of your vocal chords, the inner tract surface and all the cavities, are important in the sound you produce."

Any change in the configuration of these elements will affect the sound the person produces, according to Teager. Cancerous growth and other neoplasms, he theorizes, will thus alter the sound of a person's voice.

"The trouble with detecting most of these changes is the human ear," the researcher comments. "If you hear someone you know very well, and they have some alteration in these cavities, you'll know they sound different. But for the most part, unless you have a tape recording of how a person sounded last week, you might miss it. Even so, the information is all there in the sound that is produced."

**Voice tape part of medical record?** Thus, a taped record of a person's voice, perhaps as a part of his or her medical record, might, when compared to subsequent recordings, enable a physician to detect cancer or other growths in the vocal tract at a very early stage.

"A good part of curing cancer," Teager comments, "is catching things early. Normally, when we try to gather information about a person's body, we are limited to probes; you can inject a dye in a person . . . that kind of thing. But those methods can be kind of violent. Here, you have a built-in probe—the voice. If we learn to use it properly, I think it could be very important in the early detection of cancer and other diseases of the vocal-pulmonary tract."

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*Air flow in vocal tract as a possible means of detecting the presence of tumors is a special research interest of Herbert M. Teager, Sc.D.*
Humane clinical care stands at the hub of a multitude of CRC programs on cancer

by Owen J. McNamara

HUMANE clinical cancer care, whether it is aimed at curing the disease, controlling it, or rehabilitating the patient, stands at the hub of the multitude of cancer research, education and training activities at the Cancer Center. Most of the programs of a clinical nature are located at University Hospital, Boston City Hospital and the Boston Veterans Administration Hospital, the principal affiliates of the School of Medicine. There are also clinical activities at a growing number of community hospitals involved in the Regional Oncology Program.

Clinical faculty from the School of Medicine, staffing University Hospital, BCH and the VA, see some 1,200 new cancer patients each year. The patients for the most part come from the New England area, although some do come from other parts of the country and from abroad, as was the case several weeks ago, when a Greek physician sent his wife here for breast cancer treatment.

First separate patient unit. The Cancer Center’s clinical oncology program is based on strong sections of medical oncology and surgical oncology and an active radiation medicine department. Peter Mozden, M.D., associate director for cancer education and training of the CRC, headed the Hospital’s first oncology section, which was one of the first in the nation. The section included both medicine and surgery when it was opened in 1965, although administratively it came under the Division of Surgery. The medical/surgical oncology patient unit that opened on the fifth floor of the Hospital’s Robinson Building that same year was the first such unit in the country in a university teaching hospital.

Because of the demonstrated success of the Surgical Division’s oncology section in developing a systematic approach to cancer care, and spurred by the increasing admissions of cancer patients, the Division of Medicine in 1974 created a separate section of medical oncology and appointed Marc J. Straus, M.D., as its chief.

The 30-bed surgical cancer unit was designed to meet the varied requirements of effective clinical management of cancer patients, and the psychosocial needs of the patients and their families, as well as the needs dictated by the education and training programs that would be part of the unit. The Hospital willingly reduced the “bed density” so that the unique needs of this cancer care unit could be met.

The medical cancer unit, a 34-bed facility in the F Building, was opened in September, 1974, under the direction of Straus. Approximately two-thirds of the patients on this floor have solid tumors, while the remaining third have hematologic diseases. Like the surgical oncology unit on BC-5, the medical oncology floor has been designed to provide conference rooms and spaces suitable for teaching and clinical research. The medical oncology inpatient unit is also the locale for an outpatient oncology clinic, where an increasing number of patients are receiving chemotherapy treatment.

Traditional stand proves wrong. There had been a traditional feeling in medicine that having several or many cancer patients together in a common area was bad, that is, it was depressing for cancer patients and their families. Actually, nothing could be further from the truth, according to Mozden. “This was demonstrated years ago,” he says, “in institutions that specialized in cancer care. It was found that cancer
patients actually derived added security from sharing their concerns with others who had similar problems, or by talking with physicians and nurses who could speak openly and frankly about cancer, its special problems and the various treatments that can be brought to bear."

The oncology unit "experiment" at University Hospital showed clearly that the concept of a "cancer floor" in a general teaching hospital was not only desirable, but was eminently successful in terms of better patient care and better patient-family-staff relations.

According to Mozden and Straus, the special units have proven their value, primarily in the special emphasis they allow oncology personnel to place on the psychological needs of the patient and his family, the way the units lend themselves to specialized training programs for nurses and other oncology specialists, and the ease with which the latest research advances can be applied directly at the patient's bedside, thus helping to close the traditional "gap" between research and clinical care.

**Radiation medicine's role.** The Department of Radiation Medicine, headed by Merrill Feldman, M.D., CRC associate director for radiotherapy, participates actively in the medical and surgical oncology sections' clinical activities, as well as educational and research programs. The department's facilities include a 42-million-electron-volt Siemens Betatron and a Toshiba cobalt unit. Approximately 600 new patients are seen annually in the department.

**Information-sharing crucial**

Because cancer cuts across medical specialty lines, research and education are closely tied to clinical care through a variety of information-sharing sessions keyed to problem cases or new treatment modes.

Oncology rounds are held twice daily on both the medical and surgical oncology units, and involve medical students, the assigned residents and interns, at least one staff oncologist, and nurses from the floors. A weekly cancer seminar is geared especially to the undergraduate medical students and residents, and is conducted in small-group sessions by members of the oncology staff.

**The multidisciplinary approach.** Tumor board meetings, held each week, are aimed especially at the practicing staff physicians, with students and junior house staff able to observe the multidisciplinary ap-
approach being employed for decision-making in difficult clinical cases. Staff members from throughout the Medical Center are encouraged to present problem cases for discussion by a group that includes medical and surgical oncologists, radiotherapists, pathologists, psychiatrists and social workers. This approach to the management of cancer problems has worked well; the oncology staff leadership expects that as concepts of treatment guidelines and clinical-care review mechanisms become more firmly established, the concept of the tumor board will be even more widely accepted in cancer management.

Yet another clinical evaluation mode is the weekly conference centered on patients who have been newly admitted to the oncology units and have been examined by house staff and students on the oncology services. The aim of this conference is to demonstrate that there is a method and discipline to the systematic evaluation of a cancer problem, and that it is important to have the input of several disciplines during the initial planning of evaluation and therapy.

A tumor conference is held weekly for the presentation to students, house staff and active medical and surgical staff of a pertinent topic in the cancer field by Cancer Center specialists and experts from other teaching institutions in Boston and elsewhere.

Interaction brings results. The varied specialties engaged in clinical cancer activities come together at a cancer research conference once each month to discuss research with the Cancer Center’s basic scientists in such fields as biochemistry, virology and immunology. These meetings, although not directly tied to clinical cases, enhance the continuing cross-fertilization of ideas, as groups with common goals but different disciplines and approaches have an opportunity to learn of each other’s work and problems. Such interaction is more and more frequently resulting in joint research efforts into the causes, cure and treatment of cancer.

The adjuvant modes of therapy

The one-to-one setting developed for oncology patients at the Cancer Center helps to reduce the tension and anxieties that usually surround cancer. The nurses on F-4 and BC-5 get to know the cancer patient and his family from the first day. “Our new treatments and the toxic and powerful drugs being used are explained to the patient in great detail,” according to Mozden. “One of the lessons we have well learned is that when the patient and his family are well informed, many anxieties and tensions are curbed.”

One concerted attack. Responsibility for the cancer patient no longer belongs to any single doctor, he pointed out. “Our stress is on getting a number of disciplines—surgery, chemotherapy and hormone therapy, radiation medicine, and immunology—joined in a concerted attack. The cancer patient is presented with a collaborative effort, a plan involving a combination of treatment modalities to treat his disease from the outset. The team approach is the name of the game.”

Mozden explains that, nationally, 35 to 40 percent of cancer patients are being cured. “With our present technology, we soon should be able to cure 50 to 60 percent. With this group, the answer lies in how well we employ the technology and resources we have on hand. “Now,” Mozden says, “assuming we are able to cure 50 percent of the cancer patients—what about the 50 percent who cannot be cured? Our aim is to allow them as much time as possible, with the disease under control, with as good a quality of life as is possible. We arrive at this control through the use of drugs, hormones and immunology.

“The curative modes of treatment for cancer are surgery and radiation medicine. But there is a growing realization that, since cancer in most cases is a systemic disease, it should be attacked systemwide, right from the first sign. And, although surgery and radiation medicine are the curative agents in cancer, they are inadequate when the disease is systemic, since they are applied locally. A patient can have surgery or radiation therapy at a localized site, but 50 percent of the time, the patient will be back a year or so later, with symptoms in another site. The disease had begun spreading from day one.”

Reach all body areas. “At University Hospital, we treat the patient from day one with systemic therapy, through the use, along with surgery or radiation procedures, of ‘adjuvant’ modes of therapy—chemotherapy, hormone therapy or immunotherapy. These adjuvant modes formerly were used only to control cancer after the patient came back showing new signs. Now, we use them to support the curative modes of therapy from the outset, for they possess the potential the curative modes lack—they can reach all areas of the body.”

Also, chemotherapeutic agents, hormones and immunotherapeutic agents are maximally effective when the tumor burden is small, as it would be immediately after surgery or radiation therapy. Once the cancer cells have become well established, and have grown to visible size, these “adjuvant” modalities are less effective, and temporary remission or control can usually be achieved only for a comparatively short period of time.

Radiotherapy: Skill only half battle

Radiation medicine, an integral part of the cancer-treatment armamentarium, obviously requires staff members who are highly skilled in carrying out the treatment plans devised by radiotherapists. But, in the view of department chief Feldman, skill is only half the battle; radiation medicine personnel have to be much more than technicians.

Radiation medicine brings out strong emotional reac-
tions in patients, and technicians in Feldman’s department, like the oncology nursing staff, “have to be empathetic people, have to really be the kind of people who can carry the ball. Our people have a one-to-one relationship with patients, and sometimes it can really be tough. We are dealing with only one specific diagnosis—cancer—and a lot of patients have advanced cases, and they know they are going to die, even as they go into therapy; so from day to day, they have their emotional problems, too, and their own defenses.”

**600 new patients a year.** The department’s staffers see the full gamut of such emotions, for they see 50 to 60 patients every weekday, and there are approximately 600 new radiation-therapy patients each year.

“Some people feel that if they’ve been referred for radiation therapy, that means they have advanced cases, or terminal disease. This was the stigma in the past, that when you had to have radiotherapy, it meant that your cancer was really serious and advanced, because the surgeons couldn’t cure it, and no one else could, so you were going to die.”

Feldman says he thinks some of that stigma remains, although patients are better educated about their disease now and radiotherapy has advanced to a more definitive role as primary, as well as adjuvant, treatment.

“The other thing is the fear of the diagnosis per se. A lot of people will deny the diagnosis of cancer; a lot of other people will confront it, live with it, start to deal with it. It varies from patient to patient, family to family, from one variety of the disease to another.”

Another emotional situation Feldman’s staff must deal with involves excessive fear of treatment “side effects.” There are occasional side effects, ranging from nausea to diarrhea or hair loss, but Feldman points out that they all depend upon the body area being treated, so they can be anticipated and treated.

“These things are minimal and transient, and they are mostly controlled by drugs. We have patients who come in expecting to get sick because one of their neighbors had a treatment once and got nauseous—but in 99 percent of those cases, the patient receives treatment without getting sick. Our technicians work very hard at allaying such fears and educating their patients.”

**Goal: an infection-free environment**

The best-laid therapeutic plans of the finest oncology teams will come to nothing if the patient these physicians are attempting to cure or keep alive is not in an impeccable clinical setting, free from the dangers of infection and contamination. Although this may be the dictum of any well-run clinical unit, the oncology staff at the Cancer Center is taking extraordinary steps to achieve the optimum infection-free environment for cancer patients.

**Attacking the infection problem.** Alexander S. D.
Spiers, M.D., an outstanding British oncologist, in January, 1976, joined the Section of Medical Oncology and is working with section chief Straus to develop innovative clinical projects aimed at the infection problem shared by oncologists everywhere.

(Chemotherapy treatment suppresses bone-marrow production, thus reducing the number of white blood cells, the body's natural infection-fighters.) Spiers describes several noteworthy programs to fight infection now under way in University Hospital's medical oncology unit:

"A particularly interesting project in this area is the introduction of a special isolation room on our F-4 patient unit. The room is being structurally modified and is being furnished with a laminar air-flow bed, which surrounds the patient with a steady stream of sterile bacteria-free air, giving him that sterile air to breathe, and at the same time, protecting him from contamination from the environment and from his attendants."

Spiers explains that the use of the isolation facility is being coupled with gastrointestinal decontamination through nonabsorbable antibiotics. The antibiotic combination differs from that which has been used in the past, and is less expensive and bacteriologically more desirable.

"In addition," he says, "we are introducing on F-4 the use of chlorohexidine, which is a very superior antiseptic, completely new in the United States, although it has been used in other countries for a number of years."

Another clinical project aimed at the control of infection in cancer patients is the development of a leukapheresis service in collaboration with the U.S. Naval Blood Research Laboratory (which is located at the Medical Center) and the Department of Hematology. "We are planning to treat cancer patients intensively with cytotoxic drugs, which will produce dangerously low white-cell counts and an increased liability to infection," Spiers said. "The approach in this study," he explained, "is to treat these patients prophylactically, with white-cell transfusions obtained from relatives. The white-cell concentrates are obtained by filtration—filtering the donor's blood through special sterile filters that will remove the white blood cells, which subsequently can be washed off and used as transfusions to the patient."

An entirely new venture. Spiers says that although white cells have been used extensively in the past for the treatment of patients with cancer, infection and low white-blood-cell counts, their prophylactic use—that is, administering them regularly to patients who have not yet developed an infection—is an entirely new venture.

"The importance of this project," says Spiers, "is that if we can show effective protection by this means, it may not be necessary to use extremely expensive isolation facilities, which, in the foreseeable future, could only be made available to a very small percentage of cancer patients; so it is possible that leukapheresis, which is much less expensive, might be of much wider application in treating cancer."

The leukapheresis project, Spiers says, is being carried out under the auspices of the University Hospital Blood Bank. He noted in this regard that if the project is successful and spreads elsewhere, leukapheresis might someday become a regular part of blood-bank services.

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Bold and innovative use of chemotherapy at UH shows great value in relieving symptoms, gaining remissions

HEMOTHERAPY, the treatment of patients with potent, cancer-fighting drugs, has taken new directions at the CRC as an important therapy after attempts at surgical cure and as a means of prolonging life and relieving symptoms for those beyond surgical cure.

University Hospital's Section of Medical Oncology is using a powerful three-drug regimen, usually reserved for those with advanced disease, for women who have undergone surgery for breast cancer and have a good prognosis for cure. Only one of the 20 patients who received the treatment has had a recurrence of cancer in the two and one-half years since the study began, says Marc J. Straus, M.D., chief of medical oncology. Without such treatment, the expected recurrence rate at two years for this population is between 30 and 40 percent.

"Over the past two years there have been reports indicating that treating breast-cancer patients with drugs that are thought to be most effective for advanced disease may increase the time to recurrence or potentially cure patients who have microscopic amounts of tumor that remain after surgery," Straus says.

Now used on osteogenic sarcoma. Another development in the aggressive use of chemotherapy after and sometimes before surgery is the treatment of osteogenic sarcoma, a bone cancer that occurs most frequently in children and young adults. It is a particularly lethal disease: Surgical attempts to cure osteogenic sarcoma are successful in only 10 to 20 percent of cases. However, aggressive chemotherapy combined with surgery has reduced the recurrence rate at two years to less than a quarter of the rate for surgery alone.
At University Hospital, Alexander S. D. Spiers, M.D., an eminent British oncologist, treats osteogenic sarcoma with a combination of drugs that includes adriamycin and methotrexate, a drug that is given in doses 100 times greater than usual. This particularly high dose is followed by an antidote.

“We haven't had serious adverse effects as yet as a result of chemotherapy in any of our osteosarcoma patients. I think this has to do with our experience in medical oncology—knowing how to monitor patients carefully, maximizing doses of drugs at acceptable levels of toxicity,” says Spiers, a member of the CRC.

**Three remarkable examples.** In patients who are beyond surgical cure, chemotherapy has been particularly useful in producing remissions or relieving symptoms. Three remarkable examples of the effects of chemotherapy, often used in conjunction with surgery, radiotherapy or immunotherapy, are in the treatment of advanced lung, breast and prostate cancers.

—A chemotherapy regimen developed by Straus has resulted in a 93-percent remission rate in patients with advanced small-cell lung cancer, one of the worst known malignancies. A patient with untreated small-cell cancer has a survival expectancy of less than three months from diagnosis.

The three other types of lung cancer, large cell, adenocarcinoma and epidermoid—are less responsive to therapy. However, 60 percent of patients treated for large-cell and adenocarcinoma responded to treatment.

Straus designed the drug protocol based on the concepts of the interaction of two powerful anticancer drugs, cytoxan and methotrexate, and the growth behavior of cells. Although these drugs are now commonly used in the treatment of cancer, Straus attributes the success of the regimen to the doses and timing of the injections.

“Lung cancer is a disease that often is not treated when it is advanced, but we think that most patients with advanced lung cancer can benefit from one of the chemotherapy regimens,” Straus says.

**Remission** in cancer-care terms. In cancer care, the term “complete remission,” means that no evidence of the disease can be found upon examination. Patients who go into complete remission gain an additional one to three years of life, Straus says. Other patients may achieve a partial remission, indicating that the tumor has been substantially reduced. A complete remission is not a cure, since a few undetectable tumor cells may remain in the body.

—The treatment of advanced breast cancer has changed markedly with aggressive use of chemotherapy. There are now several drugs and several combinations of drugs that produce at least a 60- to 70-percent remission rate. The Section of Medical Oncology treats advanced breast cancer with
a three-drug regimen of cytoxan, methotrexate, and adriamycin. Of the first 15 patients treated with this protocol, all have responded to treatment and thus far remain in remission.

“Proper treatment with chemotherapy for breast cancer, in our opinion, must be very vigorous and use a combination of drugs,” says Straus.

—A similar cytoxan, methotrexate, adriamycin regimen has had dramatic results in a preliminary study of advanced prostate cancer. Each of the eight patients in the study had total amelioration of pain, and most experienced a reduction in the size of their tumors. Straus emphasizes that many more patients must be treated with this regimen before a true response rate is known.

The arsenal increases. The arsenal of anticancer drugs and knowledge of chemotherapy increases constantly. In some instances, cancer care is improved by using old drugs, such as 5-fluorouracil, in new ways.

Although 5-fluorouracil has been used for the past 15 years in the treatment of gastrointestinal cancers, there has been no general agreement as to the best way to administer it. During the past year, the Section of Medical Oncology has studied the effects of extremely high-dose infusions of the drug. The results, according to Spiers, have been less bone-marrow depression, thus leaving the patient better able to fight infection, and in some cases, more anti-tumor effect.

Platinum compounds and a four-drug regimen for head and neck cancers are among the new drugs in use at the Cancer Center.

The platinum compounds are distinguished by having very little bone-marrow toxicity and by being effective against a number of solid tumors. They are now in use in the treatment of head and neck cancers and are being studied in lung, gastrointestinal and testicular tumors.

A four-drug regimen for patients with advanced head and neck cancers was developed this year by the sections of medical oncology, otolaryngology and radiation medicine at UH with collaboration from departments at Boston City Hospital and the Veterans Administration Hospital. Thus far, the combination has been administered to patients with advanced head and neck cancers with dramatic responses. A larger study is now being planned for patients with recurrent head and neck cancers. S.G.

Most significant advance in surgical oncology: joining of specialties for systematic treatment

The most significant advance in the surgical treatment of cancer in the past decade, in the view of CRC surgical oncologist Peter J. Deckers, M.D., has been in the area of perception: the way surgeons have changed their attitudes about the role their specialty plays, vis-à-vis the several other disciplines that are involved in cancer treatment.

Systemic nature recognized. “What I have seen in the past seven or eight years is a decreasing emphasis on the massive resection as an attempt to eradicate cancer, and an increasing emphasis on the realization that cancer, in most instances, is a systemic disease when it is first diagnosed and treated,” Deckers says. The cancer, in those cases, has invaded all parts of the body. Although surgery might have removed all visible signs of the disease, micro-metastases, small colonies of cancer cells that cannot be detected by any known means, have escaped from the original tumor site and are looking for a “home” elsewhere in the body.

“Therefore, to bring really modern, comprehensive care to the patient, one has to think about doing good, local procedures that eradicate the main bulk of the tumor—using surgery, radiation therapy or both—and combine those procedures with systemic treatments, such as chemotherapy or immunotherapy at a time when the patient has a minimal tumor burden or minimum residual disease.”

In Deckers’s view, there are still a number of surgeons who would defend the concept of “a very wide and aggressive attack on cancer through surgery,” but he adds that their number is probably diminishing. The change in attitude is truly significant, says Deckers, but he adds that it should have been recognized 20 or 25 years ago. “We had all the data; we just didn’t pay close enough attention to it.”

Deckers and other oncology specialists at the Cancer Center speak frequently of “adjuvant therapy,”—the use of surgery, radiation, chemotherapy, immunotherapy and hormonetherapy to assist one another in a systemic attack against the disease.

Not too many years ago a cancer patient might have been treated with several therapeutic modalities, but those modes most often were employed in sequence. “The patient would be given surgery because it was ac-
cepted that it worked, that it was useful; so it was done. Then, when the symptoms recurred, or showed up in other body sites, certain palliative things were done to control the symptoms or retard the growth of the disease, but there was little possibility that those things would cure the patient.

'A balanced attack' possible now. "Now, with the recognition that cancer is a multidisciplinary disease," Deckers says, "we can present a balanced attack against the disease. Once you accept the concept that cancer is a systemic disease, then you ought to be able to tailor your operation so that all women, for instance, may not need a radical mastectomy for their breast cancer, but instead may have an adequate surgical procedure that is less than radical and is combined with good adjuvant radiation therapy and chemotherapy to wipe out the micrometastases.

"To me, this systemic approach, this realization of the interdisciplinary nature of cancer, is the most significant advance in surgical circles in years." ■ O.J.M.

**Radiotherapists join in projects combining radiation with hormones, immunotherapy and drugs**

The ability of radium to shrink tumors became apparent soon after Marie Curie discovered the radioactive chemical in 1898. Since then, physicians, scientists and engineers have worked to advance the field of cancer care known as radiation medicine.

Like surgery, radiotherapy is used primarily for localized tumors. Radiation therapy works as an antiproliferative agent—it impedes cell division and reduces the size of the tumor. In cases of advanced disease, radiotherapy is effective in ameliorating pain, says Merrill I. Feldman, M.D., University Hospital’s chief of radiation medicine.

**The Betatron’s effectiveness.** The 42-million-electron-volt Betatron and its sophisticated cobalt units allow the Section of Radiation Medicine to provide a full range of inpatient and outpatient services. The effectiveness of the Betatron, used mostly for deep-seated tumors, lies in its ability to penetrate deeply. When radiation is aimed at a tumor, it first passes through healthy tissue, which absorbs some of the energy. The beams from the high-energy Betatron, however, slam into the body with such intensity that less of the energy is absorbed by healthy tissue and more reaches the tumor. Healthy tissue survives the dose of radiation and recovers, Feldman says.

The relatively weak X-rays used to diagnose internal ailments and detect broken bones range from 35,000 to 150,000 volts.

The Betatron represents an endpoint in terms of engineering and design skills and penetrating ability, although the biological effects of radiation on cancer cells and the ways in which chemicals can manipulate these effects are the subject of much research, Feldman says.

**Research projects under way.** The Section of Radiation Medicine is involved in four research projects and is active in several national clinical research study groups. The projects include:

—evaluating a patient’s immune response to total body irradiation. Total body irradiation is used experimentally to treat cancers of the blood and lymph systems. Co-investigators with Feldman in the project are Edgar S. Cathcart, M.D., associate professor of medicine; Simon Kim, M.D., resident in radiation medicine; and Donna M. Yonkosky, Ph.D., assistant research professor of pathology/medicine.

—working with the Department of Physics in the clinical applications of the Betatron.

—a pilot study on the use of synthetic androids—male hormones—to control bone-marrow depression in patients receiving bone-marrow transplants and total body irradiation. This study is being carried out by
Feldman and Michael Bennett, M.D., associate professor of pathology.

**Specialists pool their findings.** By cooperating in national clinical trials, the CRC and other oncology centers throughout the country are able to learn the responses of a great number of patients sooner than if they were working independently. “The purpose of these groups is to determine what form of surgery, radiation therapy and chemotherapy operates to the best advantage of the patient. With cancer specialists throughout the country pooling their findings, we see how a large number of patients respond to a certain treatment sooner than if we waited for one hospital to complete its own study,” Feldman says.

The Section of Radiation Medicine participates in:
- the Radiation Therapy Oncology Group, which compares the advantages of one radiotherapy treatment program against another;
- the Primary Surgical Adjuvant Group, which was solely devoted to the study of breast cancer, but is extending its interest into other oncology problems, such as those involved in cancer of the colon and rectum;
- the Eastern Cooperative Oncology Group, which began as a chemotherapy group, but which recently expanded its scope of investigation to include the effects of combined chemotherapy and radiotherapy on certain types of tumors. ■ S.G.

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**Clinical nutrition trials study ways to strengthen patient’s immune response, tolerance to chemotherapy**

I t is a paradox of cancer care that many patients die of malnutrition while they are receiving the most sophisticated treatment modern hospitals can provide.

Cancer Center physicians are confronting this problem by studying whether an enriched diet administered orally or intravenously allows for more effective anti-cancer treatment and improves the quality of life in the adult cancer patient. The Hospital’s studies on intravenous feeding, two of 10 such trials throughout the country, are funded by the National Cancer Institute. The School of Medicine has received support from Mead-Johnson, a pharmaceutical company, to study the effects of feeding breast cancer patients a complete liquid diet orally or through a naso-gastric tube.

**Triple objectives.** The objectives of these studies are to determine whether proper nutrition can strengthen a patient’s immune response, increase tolerance to chemotherapy by decreasing its side effects, and decrease morbidity and mortality by allowing increased doses of chemotherapy and radiotherapy.

Two of the traditional methods of treating cancer, drug and radiation therapy, kill tumor cells, but they also depress the body’s natural defense mechanisms, thus making the patient more susceptible to infection. Other side effects of cancer therapy are nausea and loss of appetite, which further weaken the patient. The hypothesis behind enriched intravenous and oral feeding is that proper nutrition will allow the patient to remain stronger and better able to withstand therapy regimens that are more potent and of longer duration.

“It is ironic that many cancer patients have died of malnutrition or the results of malnutrition, such as the inability to fight infection or heal wounds, while they were in modern hospitals receiving the most sophisticated treatment,” says William P. Steffee, M.D., Ph.D., director of University Hospital’s Clinical Nutrition Unit, a CRC member and principal investigator in the intravenous feeding trials.

**A complete liquid diet.** When a breast cancer patient in the trial first begins therapy, she is asked to list everything she eats. Her diet is then assessed for nutrients and calories. “Most patients do not eat enough of the right foods, so we supplement what they eat with a complete liquid diet,” says CRC member Joseph J. Vitale, M.D., Sc.D., a professor of pathology and community medicine at the School of Medicine and chief investigator in the oral-feeding studies. If the patient cannot tolerate the taste of the liquid diet, or if she cannot keep it in her stomach, a naso-gastric tube is inserted, Vitale says.

Oral nutrition therapy can be administered to inpatients and outpatients. Intravenous feeding, however, can only be given to inpatients and is usually reserved for patients with advanced disease.

The type of intravenous therapy that is being used in the research is called total parenteral nutrition (TPN). A patient who receives this therapy will have a catheter inserted into a major blood vessel, through which he will receive a highly concentrated solution of nutrients.

Breast cancer patients who are undergoing chemotherapy are the subject of one TPN study, while patients with cancer in the pelvic and abdominal regions—colon, ovaries, prostate, uterus—and who are receiving radiation therapy are the focus of the second study.

** Allows full diet without eating.** TPN allows cancer patients to meet their daily nutritional and caloric requirements without having to eat food. It is also a way of feeding patients whose digestive tracts have been obstructed by cancer.

TPN and the orally-administered liquid diet are potentially an improvement over the standard in-
During rounds on F-4, the UH medical oncology unit, William P. Steffee, M.D., Ph.D., discusses a patient's nutritional program with fourth-year medical students Marilyn G. Matalon and James J. Heffernan and UH Pharmacy staffer Jordan Krigest.

Atravenous solution of sugar and water, which contains about 400 calories and no nutrients, says Steffee, an assistant professor of medicine at the School of Medicine.

The TPN solution contains about 3,000 calories and enough amino acids to supply 120 grams of protein. The protein supplement is higher than the 80 to 100 grams usually contained in the American diet in order to support healing and replace proteins lost before therapy began. The high caloric content is needed because the patient is under stress due to a growing tumor, Steffee says. Steffee described a malignant tumor as a thief, stealing the body's proteins and nutrients before non-cancer cells can use them. If the patient does not eat enough, the tumor will rob nutrients from the patient's organs. One of the purposes of the study will be to test the belief of some physicians that TPN and other methods of nutrition therapy “feed” the cancer at the same time they strengthen the patient.

Benefits v. complications studied. The TPN study will also be aimed at determining whether the benefits of this therapy override the five- to 10-percent complication rate of infection and blood clots. The only complication of the oral or naso-gastric method is irritation from the silastic tube, Vitale says.

Although the duration of TPN varies, it is usually used for four to six weeks while the patient is undergoing chemotherapy or radiotherapy, Steffee says. The TPN solution, as well as the amount of the orally administered diet, may be changed daily to meet individual caloric and nutritional needs.

Working with Steffee and Vitale on these projects are Richard Elkort, M.D., a UH surgical oncologist and CRC member, and Merrill Feldman, M.D., the Hospital's chief of radiation medicine. • S.G.
In many cases, victim of head and neck cancer has practically signed up for it in his youth

A young man who smokes heavily, drinks too much, neglects proper nutrition, and keeps up those habits, has practically signed up for cancer of the head and neck in his mid-40s.

M. Stuart Strong, M.D., chief of otolaryngology at University Hospital and a CRC member, explains that, unlike many other cancers whose causes are largely unknown, head and neck cancer is virtually produced by these habits, all of which are completely within the realm of human choice.

'Always the same group.' "It's always the same group of patients who grow this disease," says Strong, a BUSM professor of otolaryngology. "They're almost all males; they're all heavy smokers and drinkers, and have been for 20 years. If people didn't smoke or abuse drinking, head and neck cancer would almost vanish."

This particular cancer, he explains, is closely tied to liver function and the state of nutrition. If a person eats very well then he can usually tolerate more alcohol than if his diet were neglected. Malnutrition tends to weaken the person's immune response, a process physicians now know contributes to the spread of the disease.

The staff at University Hospital, Boston City Hospital and the Veterans Administration Hospital in Jamaica Plain see approximately 200 new head- and neck-cancer patients per year. Collectively, the three hospitals constitute one of the largest head- and neck-cancer treatment centers in the Northeast.

Only about one to two percent of head- and neck-cancer patients do not fall into the categories of smokers and heavy drinkers. "The men who grow cancer in the nose and sinuses are very frequently woodworkers," Strong says. "We don't know whether it is the chemicals they work with all day, or whether it's something in the resins that come out of the wood when it is being planed, or both. We can cure only about one person in 10 who have this woodworker's disease."

Some women predisposed to it. Anemic, menopausal women can also be predisposed to development of head and neck cancer. "If a women has had anemia for a long time, the membranes in her mouth and throat become irritated. This type of chronic irritation, even when it's not associated with smoking, can eventually develop into cancer," Strong explains.

Cancer in the ear is relatively rare, with only about 200 new cases developing nationally each year. The site of the majority of head and neck cancer is in the mouth and the aerodigestive tract. This cancer can include the lips and tongue as well as the larynx and the vocal chords, and can possibly involve the lungs.

In total, Strong says, about 35,000 people each year develop some form of cancer of the head and neck.

The cure rate for head and neck cancer is a discouraging 20 to 25 percent, a figure that, despite treatment advances, has not changed in 20 years. "People who come in with a very small head or neck tumor have a very good chance of being cured," Strong says. "But some have a tumor so big that it's hopeless, and really, you can't do much for them but send them home. . . . We are rehabilitating people better now; they look better, they function better and they feel better. But the actual cure rate has not changed."

No one has all answers. One reason for the steady rate is that so many of the patients also have cancer in the lung. "We get them cured of their throat cancer, and then they die of lung cancer," the otolaryngologist says. "Thus, the secret is a multidisciplinary approach at the current state of the art. No one discipline has more than a few of the answers."

A major problem in diagnosis and treatment of head and neck cancer is the presence of multiple tumors. Unlike other types of tumors, which tend to metastasize to distant parts of the body, tumors in the head and neck usually remain confined to that area. However, physicians have recently found that patients who die from the disease die with distant metastases. "Why this is, we're not really sure," Strong comments. The phenomenon is currently under study.

Team review of biopsies. Biopsies of the tumors are conducted, and the results are reviewed by a team composed primarily of the otolaryngologist, the radiotherapist, the chemotherapist, the oral surgeon, the maxillofacial prosthetodontist and the plastic surgeon.

Ten years ago, Strong and his colleagues came up with a series of three simple drawings of the oral cavity and the larynx that are used for recording the results of patient examinations. The examining physician marks on the drawing the location and the size of the tumor.
On the side of the sheet, he records the actual measurements of the tumor, and stages the disease in one of four progressive categories.

"With the diagrams and the staging system," Strong points out, "anybody can visualize the patient's problem, even without seeing the patient. In this way, everyone consulting on the case is sure to be discussing exactly the same thing."

**Patients retain ultimate choice.** As is true with most other types of cancer, treatment includes all three disciplines: chemotherapy, radiotherapy and surgery. Patients are actively involved in the development of treatment plans. Often, treatment involves certain tradeoffs, and the patient retains the ultimate choice about the treatment he will receive. Strong offers an example: "Let's say a patient who has a small tumor on his vocal chords is an automobile salesman; he's got to have a good voice. We could remove the tumor easily, especially with the surgical laser, and he'd be out of the hospital in 24 hours and back at work in a week. However, he'd be quite hoarse. On the other hand, if we gave him an x-ray treatment, which takes six weeks, he may end up with a better voice, but he'd lose his income for a month and a half. The patient has to decide what is important to him—a hoarse voice or the loss of income—and we try to act in accordance with his needs."

Nurses in the hospitals are instrumental in maintaining close contact with the patient, Strong says. "They know the patient and can assess the family situation. The nurses give us important insight into the patient's relationship with the illness," which is important in planning the treatment each particular patient is to receive.

This awareness of the patient and the quality of his life is permeating all aspects of patient care. "Our problem," Strong says, "is that now we can do operations so big that we wonder about the quality of life that will be preserved for the person after the procedure. If you take out the entire tongue, jaw and the larynx, you can sometimes keep patients alive, but you wonder about it. Would that be a great thing for your dad or mine? I'm not sure it would be. The philosophy is that these things are not reasonable anymore. We've gone to the limit, but now we've backed off a little bit."

Thus, although the cure rate for head and neck cancer is still low, there is a new concern for the patient with head and neck cancer. Specialists in each discipline are beginning to work together to develop new approaches to treatment of the disease, with an emphasis on chemotherapy and immunotherapy, while efforts to educate the public about the adverse effects of smoking are continuing. ■ N.H.

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**Use of 'skin flaps' allows immediate action on the reconstruction of patient's head and neck structures**

**by Nancy Haslam**

As recently as a decade ago, men and women who underwent surgery for treatment of head and neck cancer endured life for months, or even years, without a nose, a jaw or other structure sacrificed to prevent the spread of the disease.

Reconstruction of the patient's face, which was necessarily delayed, was, for the physicians, secondary to their major concern of removing the cancer and saving the patient's life.

Today, with immediate reconstruction possible through the use of "skin flaps," that early attitude seems callous. How could a physician be so insensitive to another human's need for social acceptability?

**Not unconcerned, but lacked techniques.** The fact is that the physicians and surgeons were concerned, according to Gaspar W. Anastasi, M.D., chief of plastic surgery at University Hospital and an associate professor of surgery at BUSM. Avenues permitting early reconstruction—that is, the technical advances and the idea of teamwork—simply had not yet been developed.

"Up until the 1950s," Anastasi says, "surgeons felt they might compromise if they considered reconstruction. Life, the surgeons thought, was acceptable at any cost, no matter what the expense was to the patient in terms of mutilation."

This priority is reflected in the textbooks of the times, according to Anastasi, a CRC member. Manuals on surgical procedures for head and neck cancer—even those published in the mid-'60s—contained little, if any, mention of reconstruction.

It wasn't until the late 1950s that surgeons began to take positive steps toward early reconstruction, Anastasi says. "But, sometimes it was a year before they started any reconstruction—sometimes several years. People who had undergone surgery walked around with all kinds of deformities, waiting for the surgeon to say, 'OK, let's go ahead with the reconstruction.'"

**Feared 'burying' tumor.** Surgeons supported this delay, Anastasi explains, because they were afraid they might hide a tumor by "burying" it under new tissue.
The deltopectoral (Bakamjian) flap is one of the flaps frequently used in the reconstruction of the skin of the head and neck area following the removal of a tumor. "Finally," Anastasi says, "the reconstructionists—the plastic surgeons—and other surgeons realized that reconstruction might be easier for the patient if they worked as a team from the start, designing a plan for the removal of the tumor and the early initiation of reconstruction." However, he notes, there was still a delay of several months between tumor excision and the start of reconstruction.

The massive wounds created by radical head and neck cancer surgery often required several complex operations involving skin flaps and bone grafts. However, new developments in skin-flap techniques made reconstruction without delay a reality. The so-called deltopectoral skin flap, developed by Vahram Y. Bakamjian, provides coverage and bulk necessary for immediate reconstruction, and permits the surgeon to move these structures into place without delay. The skin flap is cut. Flaps are peninsula-like sections of skin, fat and vessels that are cut on three sides from a section of the patient’s body. In head and neck reconstruction, the flap is usually based in the patient’s shoulder and chest area. This flap, cut according to the defect it is to cover, is brought up from the shoulder area, directly to the head and neck. The chest side remains attached as a base. The surgeon sutures the free sides of the flap, completely covering the wound created by the excision of the tumor. In some cases, after the skin flap has “taken,” the base section, or pedicle, of the flap is cut, and the remaining portion of the flap is returned to the part of the body from which it originated.

The flap has thus provided the soft tissue necessary for head and neck reconstruction. If bone grafting is necessary, it is usually done after the soft tissue has been reconstructed. Modifications of this process are used for varying forms of head and neck cancer.

"An exciting chapter in reconstructive procedures is the current utilization of “free flaps,”" Anastasi says. "This technique requires microsurgery to join blood vessels in free flaps taken from remote areas of the body to supply the necessary coverage for reconstruction of head and neck defects.”

Looking to the future, Anastasi adds, "In this field, the ultimate would be the day we get the problem of tissue rejection solved. Then, if you lose your ear because of cancer, I can get a cadaver ear and hook it up, and your body will accept it, not reject it because it is a foreign substance. However, we are still a way from that.

"But what is exciting today," Anastasi says, "is not that we have better surgeons. What we do have is a more positive and aggressive attitude toward the reconstruction and the rehabilitation of the cancer patient.”

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Regional Oncology Program allows patients to have excellent cancer care in their own home area

by Susan Gertman

For many years, the sophisticated field of cancer care was centered almost exclusively at large, metropolitan hospitals that could support an array of specialists, equipment and anti-cancer treatments. The patient, his life already disrupted by illness, usually had to leave his home area for treatment.

The situation, however, is changing. At three hospitals in Eastern Massachusetts, ambulatory cancer patients leave their jobs for about an hour a week to go to a nearby oncology clinic for drug therapy or follow-up care. The clinics are run by the Regional Oncology Program (ROP), an innovative outreach system that provides clinical and educational services to community hospitals.

Clinics are now in operation at St. Anne’s Hospital, Fall River, Mass.; Jordan Hospital, Plymouth, Mass.; the U.S. Public Health Service (Brighton Marine) Hospital, Brighton, Mass.; St. Luke’s Hospital, New Bedford, Mass.; and Frisbie Memorial Hospital,
Rochester, N.H. ROP also conducts seminars describing the multi-faceted care of cancer patients for physicians at Framingham Union Hospital, Framingham, Mass.; and Union-Truesdale Hospital, Fall River, as well as St. Anne's Hospital, Jordan Hospital and St. Luke's Hospital.

**Began as educational service.** ROP began as an educational and consultative service to community hospitals affiliated with University Hospital, says CRC member Peter J. Deckers, M.D., a surgical oncologist, and ROP program director and an assistant professor of surgery at BUSM. "We found that certain areas lacked physicians who practiced primary cancer care. We thought it was better for ambulatory cancer patients to be treated in their own communities than to travel 60 or 100 miles to see us in Boston, so we set up oncology clinics in their local hospitals."

ROP is staffed by a team of medical and surgical oncologists, radiotherapists, and nurses and social workers with special training in the care of cancer patients. Working with Deckers on the program's executive committee are Merrill L Feldman, M.D., chief of radiation medicine at University Hospital, and Marc J. Straus, M.D., the Hospital's chief of medical oncology, both associate professors at the Medical School.

Because treatment is made available in the community, ambulatory cancer patients and their families are able to continue their normal activities with as little disruption as possible. Arranging time to come to Boston for treatments is a problem not only for the cancer patient, but for the family member or friend who brings him.

"Most people around Fall River find it very difficult to go to Boston, not only in terms of arranging time and transportation, but in terms of cost and worry. People think that any problem that cannot be treated locally must be very serious, and this frightens them," says Sr. Marie Williams, R.N., a pastoral counselor at St. Anne's Hospital, who attends the weekly clinics.

**Youth stays in home area.** A 15-year old boy from Southeastern Massachusetts who had a cancerous testis surgically removed last summer comes to the oncology clinic at St. Anne's once a week. Before he received treatment at this clinic, he would have to leave school early and his parents would take him on the 75-minute drive to University Hospital in Boston. Now, his mother picks him up after school and takes him the short distance to the clinic.

In addition to convenience, the local clinics offer support and camaraderie. "Now I know that I am not the only person in this boat," the honor student says. "I can look forward to coming here and seeing friends, instead of just coming here and getting sick," a reference to the nausea some patients experience after receiving anti-cancer drugs.

Bringing oncology care to the community will result in an improved outlook on the disease, says Patricia DiMeo, R.N., an oncology nurse. "Many people in the community, lay people as well as medical people, equate cancer with death. But, when they see their neighbors coming to the clinic from work or school, their ideas begin to change," DiMeo says.

DiMeo is one of seven ROP oncology nurses and social workers who conduct workshops in the physical and emotional needs of cancer patients for community nurses, social workers and paramedical personnel. Workshops are now in operation at Pondville Hospital, Walpole, Mass., Framingham Union, Jordan, and St. Anne's hospitals.

**Helps patient, too.** The patient's major gains from the workshops is the knowledge that help is always close at hand. "It is important for the patient to know that there is someone close to home who can help; that he doesn't have to call Boston each time he has a question," DiMeo says.

Most patients do come to Boston, however, at some time during their course of treatment for surgery, for radiotherapy that is not available locally, or for more frequent drug therapy.

Another facet of ROP is the rehabilitation process, which includes the services of social workers, physical therapists, nutritionists, vocational counselors and the clergy. Deckers explains, "People have to realize that cancer is a chronic disease and that the patient will never be out of a doctor's care. The patient will have constant questions about his care that a doctor may not be able to answer, and a doctor has to be big enough to ask for help.

"That's the reason, I think, that you're finding groups around the country incorporating specialists in vocational counseling, physical therapy, and the like into their cancer activities. They finally have come to realize that cancer is a major health problem, and that the economic drain on the family and society will be greater if a person is not rehabilitated properly and helped to become a participating member of society." 

![University Hospital second-year surgical resident Ira Rutkow, M.D., presents a case at the weekly tumor conference.](image)
Cancer Research Center is chosen to conduct major NCI study into cost of cancer treatment

Although cancer researchers continually find the means to help cancer patients live longer and more comfortably, little research has been done on the cost of bringing these new techniques to the patient. What does it cost a patient to live with cancer? What does it cost the physician who attends him and the hospital that treats him?

To determine the lifetime cost of caring for cancer patients, the National Cancer Institute last year launched the first phase of a National Cost of Cancer Study (NCOCS). The Boston University Cancer Research Center and Abt Associates of Cambridge, Mass., bid successfully for the NCI contract to design and implement the study.

CRC members Robert Friedman, M.D., principal investigator for the project, and Paul Gertman, M.D., senior investigator, have been working on the survey with Abt Associates, a social research firm, since December, 1975. They are building on the findings of the Third National Cancer Survey, conducted by the NCI in 1970.

Pilot study gets under way. The survey began this spring with a pilot study at University Hospital and several other Boston-area hospitals, including UH-affiliated hospitals. Should the pilot study prove successful, a nationwide survey will be undertaken in the fall of 1977.

In addition to the direct costs of the disease — as indicated by physician and hospital bills — the NCSOS will examine the patient’s “out-of-pocket expenses,” explains Theresa Concannon, a University Hospital staff member. “That includes the cost of transportation to the physician’s office, special diets, dwelling modifications, and other costs not usually covered by insurance. In addition, we’ll try to put that information into the proper context by looking at the patient’s health status and asking, how able is he to carry out the usual activities of daily living? Has he lost his ability to earn an income, or any other ability? What has been the emotional impact of the disease?” The study will also attempt to evaluate “social” costs of cancer, such as disfigurement.

In many cases, a patient’s bills do not reflect the true cost of the care he has received. Some physicians and hospitals will continue to care for a patient even if he cannot afford to pay for their services. “In a sense, the doctor or hospital, in some cases, is subsidizing the patient’s care,” Concannon says. The hidden cost of such “free care” will also be considered by the NCOCS.

Patient to be primary information source. The survey will gather information on each patient from more than one source, but the primary source will be the patient himself. Investigators are concerned with maintaining complete confidentiality. No data will be collected on any patient without his full consent; nor will names or other identifying information be released with the final results of the survey.

After identifying cancer patients by consulting participating hospitals, investigators will ask each patient’s physician for permission to contact the patient. Hour-long interviews will be conducted in the patient’s home, covering the nature and cost of care received during the past year, as well as the patient’s general and emotional health status. “We’re not going to conduct any intense psychological examinations,” Concannon says, “but we will ask a few questions about depression and anxiety levels.”

NCOCS investigators will not ask patients to “pull out every medical record and list of expenditures from a ten-year, or even three-year, history of having cancer,” Concannon says. Instead, patients at different stages of the disease will be asked to discuss their previous year’s experience: One patient will provide information on costs incurred during the first year of treatment, and another on second-year costs, resulting in “cross-sectional data.”

To contact 12,000 physicians. Following a patient interview, investigators will telephone doctors who have billed the patient to ask for further information from the physician’s financial records. The primary physician will also be asked to complete a brief questionnaire. Over the course of the study, researchers will contact more than 12,000 physicians. In some cases, hospital or Blue Cross/Blue Shield records may be consulted to ensure a “complete and realistic picture” of costs.

NCOCS researchers will concentrate on major cancer body sites which the NCI believes account for 80 percent of the total cost of cancer care in this country. Several sites have been further divided into subsites. (For instance, more than one type of leukemia will be examined.) The study will focus on expenses for diagnosis, therapy, rehabilitation and clinical care for each type of cancer.

The NCOCS will produce the first clear picture of cancer’s financial impact, from initial diagnosis to the latest treatment, on the patient and the medical field alike. (The 1970 Third National Cancer Survey did not focus on the patient and his family.) Health planners and providers may put this information to what is perhaps its most valuable use: finding ways to soften that impact. S.A.
Debbie Lamar, nurses' assistant, (left), and Ann Giulotti, R.N., (right), assist Robert Churchill, a patient in the medical oncology unit.
Community outreach training programs bring latest oncology nursing ideas to local hospitals

TRAINING nurses to work with cancer patients is a major goal of the Medical Center's community outreach program, which began in 1969 as part of the BUMC Regional Medical Program. The program "aims at fostering regional collaboration between community hospitals and medical centers," Morden explains. Groups of physicians, nurses and social workers work with community hospital staff members. Carol Gribbons, R.N., brings continued education about cancer to nurses at Framingham Union, Pondville (Walpole), Brockton, Jordan (Plymouth), and St. Anne's (Fall River) hospitals. She will soon be working at Frisbie Memorial Hospital in New Hampshire as well.

"Let nurses identify their needs." Gribbons has organized courses, workshops, panel discussions and monthly conferences at the hospitals, in collaboration with the inservice education department of each community hospital. "Our basic approach since the beginning has been to let the nurses identify their needs," Gribbons explains. "We've never felt that we could go into a hospital and say, 'Okay, here we are and this is what we're going to do.'"

The courses cover general information on cancer, from malignant cells to the treatments available and the nursing implications. "For the most part, during their basic education nurses do not see cancer as a complete entity, from beginning to end," Gribbons says. Joan Roover, a social worker, takes part in the training program, dealing with such psycho-social problems as the patient's reaction to a diagnosis of cancer or to a change in body image after surgery.

Disease topics that the nurse is most likely to encounter in her patients, such as breast, colon-rectal, and head and neck cancer, are emphasized. Gribbons also discusses radiation therapy, despite the fact that few community hospitals have radiation units. "The nurse should be able to tell the patient and his family what to expect when he gets to the radiotherapy unit at the Medical Center," Gribbons explains. Chemotherapy is also discussed, since it is being used more frequently in the community hospitals.

Trying to change attitudes. Throughout their training, nurses most often see those cancer patients who do not respond to treatment and thus require hospitalization. "It gives them a negative attitude toward cancer," Gribbons says. "We try to make them see that it is not necessarily a downhill course. A lot of patients today are living much longer and more comfortably."

The community outreach program brings service as well as continuing education to community hospitals. In addition to teaching, Gribbons will soon be working as a clinical nurse at Jordan Hospital. The program has also provided for establishment of chemotherapy clinics, such as the one coordinated by Patricia DiMeo and staff members at St. Anne's. These units enable hospitals to avoid sending all patients to Boston for chemotherapy.

Varying stages of involvement. All of the hospitals are at different stages of involvement with the program. Those that have been involved for the longest time are the most willing to work with new ideas. But Gribbons observes that all are more open to discussing cancer today than they were in 1969. "One of the first things we did at Jordan Hospital, which just joined the program, was to start a workshop. Eight years ago they probably wouldn't have been ready for that right from the start."

Gribbons finds the community nurses' willingness to implement new services "refreshing." She plans to introduce new activities, focusing on the needs of the patient's family and the use of community resources. "We hope that the groups will eventually outgrow their need for us," she says. "Our ultimate goal is to give them the expertise to carry on by themselves." S.A.
Oncology training program provides unique means for teaching about cancer, a disease without borders

by Sue Aucella

Cancer has presented a unique problem to educators at medical schools and teaching hospitals. A disease without borders, it is too large to be easily categorized, and is almost indefinable. The medical student's traditional classroom view of cancer has been incomplete; his clinical view, one of despair.

Nearly ten years ago, however, the faculty of the School of Medicine developed a unique solution: a multidisciplinary approach to oncology training for medical students, postgraduate fellows, postgraduate medical students, house staff, nurses and social workers.

Originated special oncology course. BUSM originated the concept of a special course on cancer, which most medical schools have yet to offer, according to Peter Mozden, M.D., chief of surgical oncology at BUMC and principal investigator for the education and training project. "Instead of setting time aside in the curriculum for teaching about cancer, most schools assume that each department will cover its own area: thoracic will teach lung cancer; gastrointestinal, cancer of the stomach and colon; obstetric-gynecological, uterine cancer. But it's a disease that crosses disciplines—it can't be pigeon-holed. What department
would cover breast cancer, for instance?"

At BUSM, students are given “an opportunity to view cancer as a distinct disease, rather than just as a part of other disease syndromes or as a subsection of various other courses,” explains Richard Elkort, M.D., an assistant professor of surgery at the School of Medicine. Thirty curriculum hours are devoted to cancer within the interdisciplinary Biology of Disease course for second-year students. The course, which Mozden says “pulls together all the loose strings of all the departments,” deals with cancer in relation to other clinical problems, providing the student with a maximum amount of basic information about the disease at one time. The National Cancer Institute, which is currently funding the education and training program at BUMC, has described the course as a model for other medical schools to follow.

12 departments involved. There are 12 departments and 30 faculty members involved in the training program. The number of students interested in oncology training has increased steadily since the program began in 1967. “More residents are interested in it,” Elkort says, “and more and more people are interested in becoming surgical oncologists, as evidenced by the sharp increase in the number of fellowship applicants over the past two years.”

First- and second-year students receive what Elkort terms “classical” information about cancer through several general courses. During the third and fourth years, students may elect courses in both medical and surgical oncology. They may also serve on the medical or surgical oncology units at University Hospital for two- to four-week periods.

Residents are rotated through the “White” Surgical Service at UH for surgical oncology training because it has a higher concentration of cancer patients than the Hospital’s “Red” and “Blue” surgical services. Although the house officers are there for surgical service, they work with patients who are also receiving chemotherapy and radiotherapy as part of their treatment.

‘No-man’s land before.’ The training of specialists in clinical cancer was “a no-man’s land” until BUMC began training postgraduate physicians, Mozden says. “BUMC is responsible for the training of the majority of oncologists in Massachusetts, outside of the Boston area.” Six postgraduates are involved in the program at a time, training to specialize in medical or surgical oncology, or in radiation therapy.

The program also attracts board-qualified or board-certified surgeons who wish to continue their training as surgical oncology fellows. The two-year program deals with special surgical techniques, such as regional perfusions or supraradical surgery of the type that a resident doesn’t usually see, Elkort says. “Beyond that, we aim to make them competent chemotherapists and to familiarize them with the language of radiotherapy, so that as practicing oncologists they can coordinate all three modalities of treatment—surgery, radiotherapy and chemotherapy—on the basis of first-hand knowledge of each.”

Faculty members involved in the oncology training program try to convey more than information and techniques to their students; They try to convey a sense of hope. “We point out that the prognosis for most cancer patients is better than it is for those with advanced heart disease, uncontrollable diabetes and a variety of other conditions not associated with the morbid aspects that people associate with cancer,” Elkort says.

One out of three survives. Currently, one out of three cancer patients survives the disease. A “tremendous” number of treatments have been developed during the last 10 to 15 years, but they have not yet been made available to every cancer patient, Elkort says. “If all patients could be treated with modern techniques, at least one out of two would be saved, and that’s not a bad batting average for a disease that we still understand so little about.”

Elkort believes, most students and hospital staff members have a “distorted view” of the cancer patient, because only failing patients are hospitalized. “The bulk of our patients are followed in the office as outpatients who live at home, leading quite normal lives, surviving despite the disease,” he said. “We hope to increase the exposure of students, house officers and nurses to this type of cancer patient.”

University Hospital nurses have developed their own inhouse oncology training program, largely taught by several oncology nurses. The “pioneering” program, as Mozden describes it, is repeated several times a year and places special emphasis on working with the family of the patient. “The nurses are very gung-ho,” Mozden said, “and the program is thriving.”

Programs at SON attract many. Boston University School of Nursing also offers high-quality programs in oncology nursing, attended by nurses from all across the United States and Europe. (Only 11 nursing schools in the nation have developed oncology education programs, all funded by the N.C.I.) The training consists of a one-week course in general concepts, a three-week clinical course combining clinical practice and theory, and a masters’-level summer course. “Many nurses also expressed a need to know more about chemotherapy, so we have conducted two three-day chemotherapy workshops,” says CRC member Jeanne Valencius, R.N., M.S., principal investigator/instructor at SON. “To date, 473 nurses have attended the programs.”

The one-week course teaches concepts that can be applied to the care of any cancer patient, including carcinogenesis, nutrition, pathology, prevention and detection, and psycho-social needs. Pain control, home care and rehabilitative needs are also discussed.

The three-week course, which uses the resources of University Hospital and the Dana Center (the outpatient clinic of the Sidney Farber Cancer Institute),
deals with more specialized aspects of adult oncology training and requires the nurse to define a problem related to cancer care within her health agency or community. With the help of faculty members and fellow students, she will propose a solution and put her idea into action. “She can actually accomplish a change,” Valencius says, “such as initiating ongoing screening clinics or in-service programs.”

The four-credit masters'-level elective, which is “more in-depth than the other programs,” is offered for six weeks during the summer. “The major thrust of the program is to analyze current research efforts in oncology, define the gaps in nursing theory and practice, and develop new nursing approaches to patient care problems,” Valencius says. “This, we hope, will stimulate dynamic and creative leadership in oncology nursing.”

**Role as patient advocate.** The masters’ program also emphasizes the role of nurse as patient advocate, especially in relation to the use of investigational treatments. “The nurse is responsible for seeing that the patient knows and understands his options, and isn’t neglected if he should opt for no treatment — which sometimes happens,” Valencius says. The nurse should also understand her own legal responsibilities.

The great strides made in cancer research during the last decade demand that medical schools and teaching hospitals keep in step. Among the first to meet the need, the CRC, BUMC and BUSON continue to produce medical professionals with a current and comprehensive knowledge of cancer care.
People and programs
The officers, committees and members of the CRC

The officers
Sidney R. Cooperband, M.D., director

The director, with the approval of the Steering Committee and the dean of the School of Medicine, has recently appointed the following persons as associate directors of the Cancer Center:
Frederick Moolten, M.D.
Associate Director, Carcinogenesis Program
Vice Chairman, Scientific Evaluation Committee
Member, Steering Committee

Peter Mozden, M.D.
Associate Director, Cancer Education and Training
Vice Chairman, Education and Training Committee
Member, Steering Committee

Marc Straus, M.D.
Associate Director, Clinical Research Programs
Vice Chairman, Clinical Oncology Research Committee
Member, Steering Committee

Herbert Wotiz, Ph.D.
Associate Director, Membership
Vice Chairman, Membership Committee
Member, Steering Committee

Merrill Feldman, M.D.
Associate Director, Radiotherapy and Radiobiology Programs
Member, Steering Committee

Sidney Kibrick, Ph.D.
Associate Director, Biohazards Program
Vice Chairman, Biohazards Committee
Member, Steering Committee

Fitzroy Kennedy
Associate Director, Administration
Member, Steering Committee

The committees
A set of steering and advisory committees for the Cancer Research Center has been established, whose relationships to the individual scientists in the research program are described below. Policy-making decisions are carried out by the director with the advice and guidance of these committees.

The Steering Committee
Sidney Cooperband, M.D., chairman; director, Cancer Research Center and member of the Departments of Microbiology and Medicine
Merrill Feldman, M.D., Department of Radiation Therapy
Leonard Gottlieb, M.D., Department of Pathology
Fitzroy Kennedy, associate director, Cancer Research Center
Sidney Kibrick, M.D., Departments of Pediatrics and Microbiology
Frederick Moolten, M.D., Department of Microbiology
Peter Mozden, M.D., Department of Surgery
Marc Straus, M.D., Department of Medicine
Herbert Wotiz, Ph.D., Department of Biochemistry

These men, all senior members of the faculty in their respective departments and all committed to research efforts in cancer, represent the broad spectrum of academic interest in cancer within the Medical Center. They will carry increasing responsibility in the Cancer Center as the organization grows and the division of labor becomes more clearly established. A number of them already direct committees of the Cancer Research Center.

The Scientific Evaluation Committee
Sidney Cooperband, M.D., chairman; director, Cancer Research Center
Frederick Moolten, M.D., vice-chairman, Department of Microbiology
Arthur Albert, Ph.D., Department of Mathematics (Statistics)
Michael Bennett, M.D., Department of Pathology
Ellen Berkowitz, Ph.D., Department of Biochemistry
Laurence Corwin, Ph.D., Department of Microbiology
Robert Eckner, Ph.D., Departments of Microbiology and Pathology
Richard Elkort, M.D., Department of Surgery
Vinay Kumar, M.D., Department of Pathology
Hughes Ryser, M.D., Department of Pathology
Alexander Spiers, M.D., Department of Medicine
Herbert Wotiz, Ph.D., Department of Biochemistry

This committee, which meets biweekly, was formed in late 1974 in response to the need for a clinical body which could (1) hear suggestions for clinical oncology research proposals...
and review them, and (2) integrate the needs of basic scientists with those of clinicians in terms of developing protocols and procuring patient samples for studies. The committee also performs the valuable function of providing formal liaison with the Departments of Medicine, Surgery, and Radiotherapy at the Medical Center and with sections at the Boston City and Veterans' Administration hospitals. In addition to physicians, oncology nurses and staff members of the Regional Oncology Program and other interested persons attend meetings.

The Biohazards Advisory Committee

Sidney Cooperband, M.D., chairman; director, Cancer Research Center
Sidney Kibrick, M.D., vice-chairman, Department of Microbiology
Hugues Ryser, M.D., Department of Pathology
Belton Burrows, M.D., Section of Nuclear Medicine
Jacob Spira, Ph.D., Department of Physics
Asher Kelman, M.D., Ph.D., Departments of Microbiology and Radiotherapy

William McNary, M.D., Department of Anatomy
Peter Theran, D.V.M., Section of Animal Sciences

Because of existing viral oncology programs and expected growth in this area, this committee was formed in late 1975 to oversee the development of a biohazards program. Since its formation, a Medical Center biohazards committee has also been established, and it is now formulating plans for a Medical Center program, of which the CRC Committee will be a part.

The At-Large Scientific Review Committee

A basic tenet of both the University and the Cancer Research Center administration (reflected in the CRC Charter) is the need for peer review at regular intervals to ensure as much as possible the excellence of the Center's performance. This committee will be composed of scientists and professionals of outstanding reputation and competence in cancer research drawn from the scientific community at large. Its purpose will be to make an annual review of the CRC and its programs for quality, scientific merit, and pertinence (as defined by the director of the Medical Center), after which it will report and make recommendations to the director concerning the status of the Center. The committee
will have no less than five members, one of whom shall be designated as chairman by the medical center director. Members of this committee have not yet been appointed.

This committee reviews all grant proposals of the Cancer Research Center's staff members before their submission for funding. Its principal goal is to improve the quality of grant applications, but it also acts as a screening mechanism, eliminating duplications of effort and coordinating the research efforts of investigators who may have complementary methodology and technology in their labs. During the past year the committee has reviewed six grants, approved four of them, and rejected two. Of those approved, all were returned for revision before approval. (See Table 5.)

Grants and contracts are submitted two to four weeks before deadline and are sent out to two primary reviewers (who may or may not be members of the committee, depending on their expertise). The grants and the analyses are brought before the full committee a week later for detailed discussion. Based on this discussion and vote, the grant is either accepted, rejected, or returned for revision. The committee meets on the second Tuesday of each month, but more frequently during February-March, June-July and October-November, depending on the work load.

The Training and Education Committee
Sidney Cooperband, M.D., chairman; director, Cancer Research Center
Peter Mozden, M.D., vice-chairman, Department of Surgery
Stanley Robbins, M.D., Department of Pathology

This committee has conducted a survey of cancer education and training within the University, the first to be conducted within the institution. It has recently completed phase 1, the fact-finding phase. It is intended that the committee will now begin the task of formulating new programs at all levels of education and training.

The Hospital Advisory and Administrative Advisory Committee
These committees are called for by the Charter, but they have not been activated yet. Their members will be appointed in the near future.

The Clinical Cancer Research Committee
Sidney Cooperband, M.D., chairman; director, Cancer Research Center
Peter Deckers, M.D., Department of Surgery, University Hospital and Boston City Hospital
Richard Elkort, M.D., Department of Surgery, University Hospital
Jack Evjy, M.D., Department of Medicine, University Hospital
Merrill Feldman, M.D., Department of Radiation Medicine, University Hospital
Mark Janis, M.D., Department of Medicine, University Hospital
Peter Mozden, M.D., Department of Surgery, University Hospital
Alexander Spiers, M.D., Department of Medicine, University Hospital
Marc Straus, M.D., vice-chairman, Department of Medicine, University Hospital

Nurse practitioner Jody Parmelee (center) and Debbie Lamar, nurses' assistant (left), with Nathaniel Redman, a patient on the medical oncology floor.
The members

Arthur Albert, Ph.D., professor of mathematics, College of Liberal Arts
Gaspar Anastasi, M.D., associate professor of surgery
Alison Badger, Ph.D., associate professor of microbiology
Robert Baratz, Ph.D., assistant professor of anatomy
Michael Bennett, M.D., associate professor of pathology
Ellen Berkowitz, Ph.D., assistant professor of biochemistry
Leonard Berman, M.D., associate professor of pathology
Selwyn Broitman, Ph.D., professor of microbiology
Sati Chattoraj, Ph.D., associate professor of biochemistry
Sidney Cooperband, M.D., professor of medicine and microbiology
Laurence Corwin, Ph.D., professor of microbiology
Peter Deckers, M.D., assistant professor of surgery
Robert Eckner, Ph.D., assistant professor of microbiology and pathology
Richard Elkort, M.D., assistant professor of surgery
Jack Evjy, M.D., assistant professor of medicine
Merrill Fieldman, M.D., associate professor of radiology
Robert Friedman, M.D., assistant professor of medicine
Alphonse Gallitano, M.D., assistant professor of surgery
Paul Gertman, M.D., assistant professor of medicine
Leonard Gottlieb, M.D., professor of pathology
Waun Ki Hong, M.D., assistant professor of medicine
Marc Janis, M.D., assistant professor of medicine
Eva Kashket, Ph.D., associate professor of microbiology
Asher Kelman, M.D., Ph.D., assistant professor of microbiology
Sidney Kibrick, M.D., professor of pediatrics and microbiology
Edward Kondi, M.D., assistant professor of surgery
Vinay Kumar, M.D., assistant professor of pathology
Stanley Leong, M.D., research associate in surgery
Thomas Louis, Ph.D., assistant professor of mathematics, College of Liberal Arts
Frederick Moolten, M.D., associate professor of microbiology
Peter Mozden, M.D., associate professor of surgery
Richard Niles, Ph.D., assistant professor of surgery and biochemistry
Carl Olsson, M.D., professor of urology
Marianne Prout, M.D., assistant professor of medicine, Boston City Hospital
Arnold Reif, D.Sc., professor of pathology
Stanley Robbins, M.D., professor of pathology
Hugues Ryrer, M.D., professor of pathology and pharmacology
Samuel Shapiro, M.D., associate professor of medicine
F. Marott Sinex, Ph.D., professor of biochemistry
Alexander Spiers, M.D., associate professor of medicine
H. Eugene Stanley, Ph.D., professor of physics and physiology, College of Liberal Arts
William Steffee, M.D., assistant professor of medicine
Marc Straus, M.D., associate professor of medicine
M. Stuart Strong, M.D., professor of otolaryngology
Jorge Tello, M.D., clinical instructor of medicine, Boston City Hospital
Judith Vaitukaitis, M.D., professor of medicine
Jeanne Valencius, R.N., M.S., instructor of continuing education, School of Nursing
Joseph Vitale, M.D., professor of pathology
Pamela Watson, B.S., M.S., assistant professor of enterostomal education, School of Nursing
Herbert Wotiz, Ph.D., professor of pathology
Norman Zamcheck, M.D., professor of pathology

Associate Members

Marvin Adner, M.D., assistant professor of medicine, Framingham Union Hospital
Donna Barnard, M.D., instructor of medicine
Karolyn Barrett, R.N., instructor of continuing education, School of Nursing
Linda Christensen, R.N., instructor of continuing education, School of Nursing
Frank Coxo, M.D., assistant professor of medicine, Framingham Union Hospital
Harvey Finkel, M.D., assistant professor of medicine
Sebastian Genna, Ph.D., associate research professor of medicine
Sumner Hoffmann, M.D., professor of community medicine
Raymond Koff, M.D., associate professor of medicine, Boston Veterans Administration Hospital
Mary Jane Kurtz, Ph.D., postdoctoral fellow in biochemistry
Elinor Levy, Ph.D., instructor of microbiology
Norman Lichtin, Ph.D., professor of chemistry, College of Liberal Arts
Leah Lowenstein, M.D., professor of medicine and biochemistry
Ennio Muller, Ph.D., assistant professor of biochemistry
Sara Rothman, Ph.D., associate professor of microbiology
Elihu Schimmel, M.D., associate professor of medicine, Boston Veterans Administration Hospital
Eva Vavrousek-Jakuba, Sc.D., assistant professor of pathology
John Wysocki, M.D., assistant professor of surgery

Fitzroy Kennedy, associate director for administration of the Cancer Research Center.
Legal signs
(Continued from page 11)

Courts will rightfully expect that hospitals will adopt procedures that in-
sure that the representations of their em-
ployees regarding death and burial of
patients are accurate, and where
promises are made, that they are carried
out. Patients and their relatives trust
hospitals and their employees, and
neither courts nor juries are likely to be
terribly sympathetic when that trust is
flagrantly violated.

REFERENCES
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needed for disposal? Centercscope,
Spring, 1975.
2. Browning v. Norton — Children's
Hospital, 504 S. W. 2d 713 (KY. 1974)
2d 378, 372 N. Y. S. 2d 638 (1975)
4. Johnson v. Woman's Hospital, 527
S. W. 2d 133 (Tenn. Ct. App. 1975)

In Print

Olli P. Heinonen, M.D., Samuel
Shapiro, M.B., F.R.C.P., and Dennis
Slone, M.D., all associate professors
of medicine, Birth Defects and Drugs
in Pregnancy. Publishing Sciences
Group, Inc., 1977. 516 pp. $75. Pre-
presents data from a prospective study
of drugs used by more than 50,000
women, between 1958 and 1965, in
relation to birth defects identified in
their children. Includes material that
should be of interest to scientists
concerned with all aspects of teratol-
yogy, and particularly to epide-
miologists engaged in exploring
birth defects, whether from the
perspective of hypothesis generation,
or from that of hypothesis testing.
Chaim M. Rosenberg, M.D., Ph.D.,
associate professor of psychiatry
(and Anthony E. Raynes, M.D.),
Keeping Patients In Psychiatric Treat-

167 pp. $15. The authors analyze
obstacles in the path of adequate
psychiatric care and propose specific
actions to improve patient retention
and ensure a more effective use of
the treatment system. Their overview
of the system for providing psy-
chiatric treatment includes factors
that influence the decision to accept
or reject treatment, the costs to
health systems, and a critical evalu-
ation of the relevant literature from the
United States and other countries.
George J. Annas, J.D., director of the
Boston University Center for Law and
Health Sciences, and Leonard H.
Glanz, J.D., and Barbara F. Katz,
J.D., staff attorneys, Informed Con-
tent to Human Experimentation: The
Subject's Dilemma. Ballinger
Publishing, 1977, 384 pp. $17.50. A
report prepared for the National
Commission for the Protection of
Human Subjects of Biomedical and
Behavioral Research. It recommends
that researchers be strictly required to
obtain voluntary, competent, in-
formed consent before conducting
research on human subjects, and that
they further be required to disclose
information on procedures and risks
whether or not the experiment is
designed to benefit the subject.
Richard W. Chalkin, D.D.S., M.Sc.D.,
BUSGD '65, Elements of Surgical
Treatment in the Delivery of
Periodontal Therapy. Quintessence
International, 1977. 300 pp. $54. A
text for the general practitioner and
periodontist with chapters on
diagnosis, gingivectomy, principles of
suturing, flap design, implantology,
electrosurgery, and the use of assis-
tants during periodontal surgery.
With illustrations and photographs.
Harold L. Goldberg, M.D., an
associate clinical professor of psy-
chiatry, (and Alberto DiMascio, Ph.D.)
Emotional Disorders: An Outline
Guide to Diagnosis and Phar-
macological Treatment. Medical
Economics Book Division, 1977. 144
pp. $8.95. A book designed to assist
physicians, medical students, nurses,
pharmacists, and others in dealing
with the most common psychiatric
problems amenable to drug therapy.
It deals with selection of appropriate
medication, doses, scheduling, dura-
tion, and termination, and is based on
the practical experience of the
authors and the latest citations from
the literature.

Commentary
(Continued from page 4)

would become the meaningful figure,
rather than the per-diem cost at one
university hospital or one community
hospital, reflecting a more equitable
means of distributing tertiary-care
costs throughout the system served
by the academic medical center
without lowering the quality of care.
Although all member hospitals in
the multi-hospital system, including
the urban teaching hospital, would
lose some autonomy, they would all
greatly benefit from the development
of a coordinated health-care system.
All patients would benefit by receiv-
ing the appropriate level of high-
quality care wherever they were
treated within the system.
Tertiary care would need to remain
predominantly, but not exclusively,
within the academic medical center,
but certain community hospitals in
the system would also develop into
academic campuses with some
tertiary-care capability and with ma-
JOR commitments to medical-student
and house-staff education. All of the
community hospitals within the
system would place an increased
emphasis on education, especially in
the areas of continuing medical
education and patient education. The
patient would be the beneficiary,
receiving high-quality, humane care
wherever hospital treatment was ren-
dered.
Spur to planning efforts. The multi-
hospital system would provide for
greater planning by health-care in-
itutions within a region, leading to
reduced duplication of tertiary ser-
VICES, which, in turn, should lower the
aggregate cost of health care within
the area served by the system.
The multi-hospital system not only
could serve to alleviate the fiscal
Crisis in the academic medical center,
but also, by contributing to more
rational health planning and more
 equitable distribution of health man-
power, would be truly consonant with
the needs of the country as they are
expressed in the current national
health-planning effort.
Matters of Record

Faculty Actions

School of Graduate Dentistry Appointments

(Effective Oct. 1, 1976, unless otherwise noted)

Richard L. Cardiff: Assistant Professor of Prosthetic Dentistry, effective Nov. 1, 1976.

Karabasz Chinn: Instructor in Public Health and Community Dentistry.


Alan Gauchman: Instructor in Public Health and Community Dentistry.

Jose M. Guarino: clinical instructor in prosthetic dentistry, effective January 1, 1977.

Robin Lawrence: Lecturer in Public Health and Community Dentistry.


Ellen S. Naydutch: Lecturer in Public Health and Community Dentistry.

Michael A. Segal: Clinical Instructor in Prosthetic Dentistry, effective Nov. 1, 1976.

Joseph Steinhurst: Lecturer in Public Health and Community Dentistry.


School of Medicine Appointments

(Effective Nov. 1, 1976, unless otherwise noted)


Gordon C. Blanchard: Instructor in Pathology.

Herbert E. Bradley: Assistant Clinical Professor of Pediatrics, effective Dec. 1, 1976.

Stanley H. Ducharme, Jr.: Assistant Clinical Professor of Rehabilitation Medicine, effective Dec. 1, 1976.


Maureen J. Giovannini: Assistant Professor of Socio-Medical Sciences and Community Medicine, effective Dec. 1, 1976.

Wayne A. Gonnerman: Assistant Professor of Biochemistry, effective Dec. 1, 1976.


Sonya Hamlin: Adjunct Assistant Professor of Socio-Medical Sciences and Community Medicine, effective Dec. 1, 1976.


John M. Karefa-Smart: Clinical Professor of Socio-Medical Sciences and Community Medicine, effective Dec. 1, 1976.

Amy E. Kumar: Assistant Research Professor of Medicine.

Raj Kumar: Assistant Research Professor of Medicine.

Elinor M. Levy: Instructor in Microbiology.

Simon Locke: Lecturer on Neurology.


Nagi A. S. Mohammed: Assistant Clinical Professor of Radiology.

Patricia E. Moyer: Clinical Instructor in Medicine.

Theodore L. Munsat: Lecturer on Neurology.

Jane S. O’Hern: Associate Professor of Psychiatry.


John A. Renner, Jr.: Associate Professor of Psychiatry, effective Dec. 1, 1976.


Neil B. Ruderman: Professor of Medicine, effective July 1, 1976.

Joseph Ruggieri: Assistant Professor of Pathology.

Ascher J. Segall: Professor of Socio-Medical Sciences and Community Medicine, effective Dec. 1, 1976.

Richard J. Sohn: Assistant Professor of Biochemistry, effective Dec. 1, 1976.

Peter G. Stringham: Clinical Instructor in Pediatrics.

Kotaro Suzuki: Associate Professor of Obstetrics and Gynecology; and Associate Professor of Pediatrics, effective Dec. 1, 1976.

Donna M. Yonkosky: Assistant Research Professor of Medicine and Pathology.

School of Graduate Dentistry Changes in Title

(Effective Nov. 1, 1976, unless otherwise noted)

Nathan S. Birnbaum: To Assistant Clinical Professor of Prosthetic Dentistry.

Donald Downing: To Professor of Biochemistry and Nutritional Sciences; and Research Professor of Dermatology.

Jon T. Kapala: To Chairman, Department of Pedodontics.

Fred H. Naimon: To Assistant Professor of Prosthetic Dentistry.

Frank Oppenheim: To Associate Professor of Oral Biology.

Michael A. Rubin: To Assistant Clinical Professor of Prosthetic Dentistry.

Gerald Udler: To Assistant Clinical Professor of Pedodontics, effective Oct. 1, 1976.

School of Medicine Changes in Title

(Effective Dec. 1, 1976, unless otherwise noted)

Mohammed Akbarian: To Assistant Clinical Professor of Medicine.

Richard A. Bloomfield: To Associate Clinical Professor of Medicine, effective July 1, 1977.

Sidney Brodie: to assistant clinical professor of pediatrics, effective March 1, 1977.

Athanasios P. Flessas: To Adjunct Associate Clinical Professor of Medicine, effective July 1, 1977.

Marvin P. Fried: to assistant professor of otolaryngology, effective July 1, 1977.

Allen H. Greenfield: to clinical instructor in psychiatry, effective March 1, 1977.
Mary C. Howell: to assistant clinical professor of pediatrics, effective March 1, 1977.

Joseph S. Incze: To Lecturer on Pathology.

John L. Jainchill: to assistant professor of medicine and sociomedical sciences and community medicine, effective March 1, 1977.

Muhammed A. Khan: To Assistant Professor of Medicine.

Yhu-Hsiung Lee: to instructor in pediatrics, effective July 1, 1977.

Robert J. Master: To Instructor in Medicine; and Assistant Clinical Professor of Socio-Medical Sciences and Community Medicine.

Lillian E. C. McMahon: to instructor in pediatrics, effective March 1, 1977.


Norman L. Paul: To Associate Clinical Professor of Neurology, effective July 1, 1977.

Stephen I. Pelton: to assistant professor of pediatrics, effective July 1, 1977.

Sara W. Rothman: To Assistant Research Professor of Microbiology.

Thomas D. Sabin: to associate professor of neurology and psychiatry, effective March 1, 1977.

Stanley M. Shapshay: to assistant professor of otorhinology, effective July 1, 1977.

Phillip J. Stone: To Assistant Professor of Biochemistry, effective Nov. 1, 1976.

David W. Teele: to assistant professor of pediatrics, effective July 1, 1977.


Optimal nutritional support as an adjunct to cancer therapy in the adult—abdomen and pelvis malignancies undergoing highdosage treatment. W. Steffee. NIH. $82,077. 9/30/76-9/30/77.

Optimal nutritional support as an adjunct to cancer therapy in the adult—carcinoma of the breast. W. Steffee. NIH. $82,827. 9/30/76-9/29/77.

Clinical metabolic research unit. J. Melby. NIH. $174,586. 12/1/76-11/30/77.

Drug treatment of stenosing primate athrosclerosis. D. Kramsch. NIH. $64,382. 1/1/77-12/31/77.

**School of Graduate Dentistry**

Health professions student loan. H. Goldman. DHEW. $22,659. 7/1/76-6/30/77.

Workshop on early detection and prevention of dental disease in preschool and preadolescent children. A. Jong. DHEW/PHS. $10,000. 9/30/76-9/29/77.

**School of Medicine**

Research training in nephrology. N. Levinsky. NIH. $31,293. 7/1/76-12/31/76.

The metabolic regulation of membrane permeability. A. Gorman. NIH. $37,490. 9/1/76-8/31/77.

Enrollment and retention of minorities. S. Roman. PHS. $211,079. 7/1/76-6/30/77.


Iodine metabolism of the thyroid gland. I. Rosenberg. NIH. $90,752. 9/1/76-6/31/77.

Neuropsychopharmacological studies of attention. C. Kornetsky. NIMH. $141,775. 9/1/76-8/31/77.

Postdoctoral fellowship. P. Knapp. NIMH. $16,600. 8/1/76-7/31/77.

Role of the arterial wall in atherosclerosis. W. Hollander. NIH. $578,599. 9/1/76-8/31/77.

Mechanism of angiotensin action on target issues. P. Brecher. NIH. $20,339. 9/1/76-8/31/77.

Fellowship—Dr. Fairen. A. Peters. C. A. King Trust. $19,250. 10/1/76-9/30/77.

Life problems and alcohol use in an urban population. N. Scotch. NIH. $89,587. 8/1/76-7/31/77.

Endocrine and metabolic response to shock and trauma. R. Egdahl. NIH. $153,680. 9/1/76-8/31/77.

Characterization of membrane transfer in receptor sites. A. Sullivan. NIH. $25,000. 7/1/76-6/30/77.

Cardiovascular disease and evolving diabetes mellitus. J. O'Sullivan. NIH. $158,352. 9/1/76-8/31/77.


Methodology of outpatient drug research. S. Fisher. NIMH. $255,238. 9/1/76-8/31/77.


Health professions student loan. J. Sandson. DHEW. $82,429. 7/1/76-6/30/77.

Direct cost awards. NIH. $69,739.

Behavioral factors in cardiovascular diseases. C. Jenkins. NIH. $92,248. 9/1/76-8/31/77.

Lung elastic tissue. C. Franzblau. NIH. $26,591. 9/1/76-8/31/77.

Investigation of HBS tactoid formation. E. Simons. NIH. $33,582. 9/1/76-8/31/77.

Long term training in rehabilitation medicine. M. Freed. DHEW. $38,480. 7/1/76-6/30/77.

Feasibility study for a model comprehensive stroke center program. R. Feldman. DHEW. $50,662. 9/30/76-9/29/77.

Objective focusing fundus camera. R. Laing. NIH. $21,701. 9/17/76-8/31/77.


Immunogenetic regulation in autoimmune brain disease. M. Moore. NIH. $37,701. 9/1/76-8/31/77.

Postdoctoral fellowship. W. Hood. NIH. $14,500. 7/1/76-6/30/77.

Multidisciplinary cancer center: Core grant. S. Cooperband. NIH. $155,343. 9/30/76-9/29/77.

Program project: New approaches to tumor immunotherapy. S. Cooper-
band. NIH. $31,852. 11/1/75-1/31/77.

New careers training. L. Peters. 

NIMH. $127,270. 7/1/76-6/30/77.

Etiologic and prognostic factors in breast cancer. H. Kotz. NIH. $161,630. 9/30/76-9/29/77.

Program in rheumatology. A. Cohen. NIH. $19,528. 7/1/76-6/30/77.

Life problems and alcohol use in an urban population. N. Scotch. NIH. $10,608. 8/1/76-7/31/77.

Physical chemistry of biologically active lipids. D. Small. NIH. $204,712. 9/1/76-8/31/77.

Indirect cost awards. NIH. $330,659.

University Hospital anatomic pathology services. L. Gottlieb. Boston City Hospital and University Hospital. $303,500. 10/1/76-9/30/77.

Hoffman-LaRoche unrestricted grant. D. Slone. Hoffman-LaRoche. $20,000. 11/1/76-open.

Salary support for F. I. Harosi. B. Kaminer. NIH. $52,158. 10/1/76-9/30/78.


Educational and training program in community health. H. Levine. Commonwealth of Massachusetts Department of Mental Health. $27,953. 9/1/76-6/30/77.

Immunobiology of transplacental carcinogenesis. M. Bennett. American Cancer Society. $113,984. 1/1/77-12/31/78.

Polyunsaturated fatty acids and cancer. L. Corwin. American Cancer Society. $100,000. 1/1/77-12/31/78.

Pulmonary research fellowship. G. Snider. P. B. Francis Foundation. $16,740. 7/1/77-6/30/78.

Lymphocyte proliferation inhibitory factor. S. Cooperband. NIH. $10,749. 10/1/75-11/30/76.

General clinical research center. J. Sandson. DHEW/PHS. $105,360. 10/1/75-11/30/76.

General clinical research center. J. Sandson. NIH. $37,652. 1/1/77-12/31/77.

Lymphocyte proliferation inhibitory factor. S. Cooperband. NIH. $65,996. 12/1/76-10/30/77.

Indirect cost awards. NIH. $169,425.

Effects of steroid hormones on subcutaneous gland secretions and on development of acne. P. Pochi. NIH. $54,184. 12/1/76-6/30/77.

Training program in endocrine and metabolic research. J. Melby. NIH. $37,525. 1/1/77-12/31/77.

Bristol fellowship in infectious diseases. W. McCabe. Bristol Labs. $14,500. 7/1/77-6/30/78.


Acute and long-term clinical toxicity of drugs. H. Jick. NIH. $359,328. 1/1/77-12/30/77.

Health change in air-traffic controllers. R. Rose. FAA. $504,192. 1/1/77-12/31/77.

Cognitive deficits related to chronic alcoholism. N. Butters. NIH. $69,099. 1/1/77-12/31/77.

Applied pulmonary physiology. E. Gaensler. NIH. $31,860. 1/1/77-12/31/77.

Pathophysiology of myocardial ischemia. W. Hood. NIH. $55,560. 1/1/77-12/31/77.

Autonomic nervous system function in bronchial asthma. A. Mathew. NIH. $40,000. 1/1/77-12/31/77.

Indirect cost awards. NIH. $850,207.

Diet microflora and induction of colonic carcinoma. S. Broitman. NIH. $33,143. 1/1/77-12/31/77.

Ultra structure and organization of the sensory cortex. E. White. NSF. $79,800. 1/1/76-6/30/79.

Synovial membrane and related connective tissues. A. Cohen. NIH. $84,439. 1/1/77-12/31/77.

Pathogenesis and complication of hypertension. A. Chobanian. NIH. $766,484. 12/1/76-11/30/77.


Framingham Heart Study cohort. T. Dawber. NIH. $264,366. 6/29/75-9/30/78.

Research training in nephrology. N. Levine. NIH. $80,455. 1/1/77-12/31/77.

Immunobiology of amyloid. A. Cohen. Hartford Foundation. $78,311. 2/1/77-1/31/78.

Indirect cost awards. NIH. $363,001.


Chronic alterations in tissue metabolism after shock. N. Ryan. NIH. $41,994. 2/1/77-3/31/78.

Synthesis of bile pigments in plants. R. Troxler. NSF. $48,100. 1/15/77-6/30/78.

Research fellowship—Dr. Alan Tall. D. Small. Medical Foundation. $13,500. 7/1/76-7/30/80.

Immunologic mechanisms of glomerular injury. W. Couser. NIH. $25,000. 2/1/77-11/31/78.

The structure and projections of the cochlear nuclei. W. Warr. NIH. $39,981. 3/1/77-2/28/78.

Experimental optic neuropathies. S. Lessell. NIH. $55,521. 4/1/77-3/31/78.

Medical Foundation research fellowship. M. Pozen. Medical Foundation. $13,500. 2/1/77-1/31/78.

Normal and pathological human brain function. M. Berman. NIH. $25,000. 4/1/77-3/31/78.

Program project—New approaches to tumor immunotherapy. S. Cooperband. NIH. $126,136. 2/1/77-1/31/78.
Michael J. Halberstam, '57: "My friends must think I'm only writing."

ALUMNI PROFILE

A writer, yes — but a physician first of all

by Mary Hager

WASHINGTON, D.C.—Michael J. Halberstam, BUSM '57, would like his friends to know that he is "alive and well and practicing medicine"—and that "I intend to keep doing so as long as I'm healthy."

For most physicians, such a statement would be totally unnecessary. But Halberstam is not like most physicians. For years he has pursued two careers, employing both his medical and his journalistic talents. His bylines are numerous and visible, in the Atlantic, New York Times Magazine, New England Journal of Medicine, American Medical News, Today's Health, for starters; recently he was named co-editor of Modern Medicine. So visible has been his writing career, in fact, that "what disturbs me is that people only know me because I have a byline. My friends must think I'm only writing."

Solo and streamlined. This last, most assuredly, is not true, for Halberstam maintains an active solo practice in internal medicine, specializing in cardiology, in Washington, D.C. He does admit, though, to having streamlined his practice a bit to accommodate the writing, cutting out the "junky stuff"—like allergy shots and college entrance physicals for nonpatients—and not taking "difficult" patients anymore. Among the latter he places strangers who call from phone booths demanding to be seen "right now," for "they tend to be impulsive and unreliable, usually insistent," he explains. "Someone who is really sick will go to an emergency room."

He finds he is also taking fewer young patients. "Medically, there's not much wrong with them. It's usually depression and tension. I don't do much for them, and they don't feel much better, but they get the same bill. It's the least satisfying type of encounter."

As a solo practitioner, Halberstam takes his own calls, except when he is out of town; then a colleague, who is also in solo practice, covers for him. Halberstam finds that taking the calls does not interfere with his after-hours writing. "My patients are very considerate," he says. "They never call at night or on weekends unless it is serious or acute."

Natural path to medicine. Becoming a doctor was a natural path for Halberstam. His father was a doctor, and Halberstam recalls going to the hospital with him when he was a boy. He grew up wanting to be a doctor, for he saw being a doctor as "the only thing that's fun."

But, as he says this, he realizes "that is not entirely true, because I always thought journalism seemed like an easy way to earn a living." And since his younger brother David was beginning to make something of a name for himself in the journalism world, there must have been a familial tug there, too.

The desire to be a doctor won for a very practical reason. "I knew I could always write if I became a doctor," he explains, "but I couldn't be a doctor if I wrote."

Even his path toward becoming a doctor was marked by a devotion to two professions. While classmates at Harvard who planned to become physicians were tending their test tubes and doing dissections, Halberstam spent his undergraduate years majoring in history—taking the minimum of four science courses required for medical school—and working daily on the Harvard Crimson. Many colleagues on the Crimson—such men as Anthony Lewis and J. Anthony Lukas of the New York Times—have since won acclaim in journalism. The 'wisdom to accept' him. When it came time to apply for medical school, Halberstam found his humanities background and jour-

Mary Hager, a free-lance writer, lives in McLean, Va.
nalistic talents were not in great demand. He was accepted at BUSM, and "I have always been grateful to the School," he says. "They had the wisdom to accept me."
The writing continued sporadically during his BUSM years and became serious when, while doing his military stint with the Public Health Service, he had a number of articles published, one a piece about Alaska in Holiday Magazine. It was a handy way to supplement his meager income, so he continued writing during his residency in Burlington, Vt., and wrote on during a cardiology fellowship at George Washington Medical School in 1962. Then, an article won a prize, he was contacted by Medical Economics, and the second career took off.

"The whole thing has snowballed since then without much plan to it," he says. "I never really thought I'd be doing this."

Part of the snowballing can be explained by the fact that, as a physician who can also write, he has become "everyone's token practicing physician." When a symposium or magazine issue is devoted to a health-care issue and someone decides a practicing physician ought to be represented, Halberstam often gets the call.

Airs physicians' feelings. Halberstam has used this "token" position to become an articulate and effective spokesman for the practicing physician. "I feel very strongly that the medical profession that is written about is very different from the medical profession that exists," he says. "It is written about by nonphysicians or by physicians who have never practiced." With a few exceptions, he says, the writing is both biased and uninformed.

"I kept reading articles (about medical care and health) that had absolutely no relationship to the realities experienced in my own practice," he recalls. "I didn't have to be too bright to say, 'Why don't I write about it and say how it really is?'" And, he adds, "I was right. There was a vacuum."

Since he still sees enormous gaps, he has tried to get more doctors interested in writing, with some success. Whenever a physician calls him with a story idea—which happens with increasing frequency—Halberstam suggests the physician write it himself. "They always say 'I'm not a writer,'" he says. "Doctors are really reluctant to write, but they can tell a story concisely and pungently. All they have to do is write it down."

Despite his dedication to medical writing, Halberstam does not think of himself as a "medical writer." From high school English on, though, he recalls "I was always told to 'write about what you know about,' and the one thing I know about is medicine." Likes the Challenge. But he has also written about other things, sex and sports and cities, for instance. He recently completed a political novel, and he thinks "it is a good idea to write about something you don't know about, to make things up, to do research."

With much of his writing, Halberstam's intention is "to make people think, to make people realize the issues are not as simple as Ralph Nader or John Knowles makes them appear." He likes the challenge of writing for the New York Times Magazine because it is so widely read by the thoughtful people who can change social policy.

Halberstam looks forward to his increased responsibilities with Modern Medicine, which he has served as a senior editor for a number of years. He plans to continue soliciting and reviewing manuscripts, and editing and writing, mostly long-distance, since the magazine is published in Minneapolis.

Since he has managed to do this and keep up with his practice and his other writing, in addition to finding time for tennis and rowing and his family—he has two sons, now 14 and 15—for a number of years, he doesn't expect life to be much different, except, he laments, he doesn't find much time for skiing anymore.

Between them, Michael and David Halberstam (with a straight face Halberstam says, "I taught my younger brother to write") have kept the family name in the public eye for a number of years. But he admits he and David have both been panicked by the byline of "Yitta Halberstam" that turned up recently in Parade Magazine.

"Neither David nor I know who she is."

Rusk addresses alumni; Cohen elected president

More than 200 alumni, students and guests attended the annual meeting and banquet of the BUSM Alumni Association at the Copley Plaza Hotel, Boston, on May 14. Howard A. Rusk, M.D., director of the Institute of Rehabilitation Medicine at New York University Medical Center, was the principal speaker.

Rusk, internationally known as a pioneer in rehabilitation medicine, spoke with enthusiasm of the great
strides that have been made in that field over the past two decades. He said, "If someone had asked me 15 years ago what could be done for a youngster who suffered a broken neck, I would have said that getting 15 percent back into some kind of useful life would be rather good. . . . Now, two three-year retrospective studies of 130 children with broken necks have been carried out. The first, begun six years ago, showed that 53 percent were back in school or doing some kind of gainful work. Last year, the second study came out, covering the next three years, and it showed that 83 percent were able to lead productive lives." UH doing 'great work.' Rusk paid tribute to University Hospital's New England Regional Spinal Cord Injury Center as a place "where great work is being done." He also said he was proud that he had had a hand in getting Murray M. Freed, M.D., UH chief of rehabilitation medicine, into the field, "where he is one of the outstanding people today."

The Alumni Association elected the following slate of new officers for the coming year: Alan S. Cohen, '52, president; P. Anthony Penta, '51, first vice-president; Peter E. Pochi, '55, second vice-president; Job E. Fuchs, '44, secretary; Edward Spindell, '53, assistant secretary; Lester F. Williams, Jr., '56, treasurer; Donald T. Devine, '50, assistant treasurer; and Barry M. Manuel, '58, auditor. 

Directors appointed. Appointed to the board of directors were Donna R. Barnard, '65, and Martin B. Levene, '50, for terms expiring in 1978; Arnold L. Berenberg, '46, and Judith L. Vailutkaitis, '66, for terms expiring in 1979; and Elizabeth C. Dooling, '65, and Murray M. Freed, '52, for terms expiring in 1980.

The alumni banquet culminated a weekend of alumni activity that included a Friday evening gathering of the Class of 1952, this year's 25-year class, and a Saturday luncheon for all returning alumni at the School. Nearly half of the Class of 1952 attended the Friday dinner at the Castle on the Charles River campus. On Saturday, BUSM Dean John I. Sandson addressed the alumni on issues in medical education, and hosted a reception and luncheon.

Faculty raise $100,855 in answer to challenge

A total of 241 School of Medicine faculty members have contributed to the School's "Challenge" drive, raising $100,855 for the Student Revolving Loan Fund.

The Alumni Association had challenged the faculty to raise $100,000 by Dec. 31, 1976, to match the Association's pledge to the loan fund. The money that was raised will allow the School to offer student loans at more favorable interest rates than those that are currently available.

"The outcome was good. We did meet the challenge," said BUSM Dean John I. Sandson, M.D. Sandson also commented on the high rate of participation by the full-time faculty, and said he thought it was unusual for a faculty to be so responsive to such a drive.

The following persons had contributed to the fund as of June 10, 1977:

| William Adams          | Constance C. Cornog          |
| Elsa J. Aguilera       | Laurence Corwin             |
| Joel J. Alpert         | Frank F. Davidson, Jr.      |
| Bernhard Anderson      | Thomas Dawber               |
| Gaspar W. Anastasi     | Peter J. Deckers            |
| Marvin Bacaner         | Donald T. Downing           |
| Madeleine Bachta       | Kenneth Edelin              |
| Edgar E. Baker         | Richard H. Egdaeli           |
| David A. Bailen        | Joseph Egharevba            |
| Michael Bennett        | Timothy H. Eisaman          |
| Patricia Berger        | Richard J. Elkort           |
| Robert L. Berger       | Peter A. Engel              |
| Ellen M. Berkowitz     | Alvin Essig                 |
| Leonard D. Berman      | J. Worth Estes              |
| Daniel S. Bernstein    | David Faxon                 |
| David B. Bernard       | S. Edwin Fineberg           |
| Mr. & Mrs. John Betjemann | Seymour Fisher            |
| Charles M. Bliss       | Murray Freed                |
| Richard A. Bloomfield  | Robert H. Friedman          |
| Leon R. Briggs, Jr.    | Sidney Friedman             |
| Jerome S. Brody        | Alphonse Gallitano          |
| Selwyn A. Broitzman    | Haralambos Gavras          |
| Padraic Burns          | Gillette Company            |
| Belton Burrows         | Harold Goodglass            |
| Edwin S. Busch         | Leonard S. Gottlieb         |
| John J. Byrne          | Jeffrey B. Gould            |
| Raymond A. Cadieux     | Kenneth M. Graham           |
| John Cahill            | William A. R. Greer         |
| John Carper            | Inta A. Grotz               |
| Chava Chapman          | Launor D. Harris            |
| Sati C. Chattoraj      | Gerald Hass                 |
| Aram V. Chobanian      | John A. Hayes               |
| Sanford Chodosh        | Paul J. M. Healey           |
| Joseph Cochin          | Sanford D. Hecht            |
| Joseph Cochin          | Frederick W. Hehre          |
| Jay D. Coffman         | William Hollander           |
| Sanford J. Cohen       | William B. Hood, Jr.        |
| Bentley P. Colcock     | Beni M. Horvath             |
| Francis L. Colpoys     | David C. Hueter             |
| Sidney Cooperband      |                             |

Beldon A. Idelson       Joseph S. Inceze                Franz J. Ingelfinger
Lenworth Jacobs        Bimal P. Jain                  John L. Jainchell
Ophelia S. James       Jewel Foundation              Lorraine M. Josof
B. Kaminer             Samuel Kaplan                 Eva R. Kashket
Alan S. Katz           Paul Kaufman                  Herbert L. Kayne
Ambrose F. Keeley      M. David Kelleher             Charles J. Kersner
M. Anees Khan          Sidney Kibrick               Jerome O. Klein
Michael D. Klein       Peter H. Knapp                James B. Knight
Raymond S. Koff        Edward Kondi                  Lewis F. Kornfeld
Constantine Kostas     Philip Kramer                 Dieter M. Kramsch
Robert Krane           Edward Kreger                 Edward Krukonis
Vinay Kumar            Alan Kupferman               Eugene G. Laforet
Knowles B. Lawrence    Robert Leach                  Melvin Leeds
Robert M. Levin        Howard M. Leibowitz            Herbert M. Levenson

Howard B. Levine
Irving M. Levine
Paul A. Levine
Ruth R. Levine
Sol Levine
Norman G. Levinsky
Robert D. Lille
Frank W. LoGerfo
Ernest Lowe
Leah M. Lowenstein
Irvig M. Madoff
David T. Mahoney
Barry Make
Alice T. Marston
Massik Family Charitable
Fund of the Combined
Jewish Philanthropies
Owen R. Mathieu, Jr.
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Herbert Mescon
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Robert Moylan
Richard S. Neiman
Lawrence A. Norton
Bernard E. O'Brien
John F. O'Brien
John F. O'Connor
Carl A. Olsson
Ann R. O'Meara
Oncology & Hematology
Associates (combined gift
of Donna R. Barnard,
Jack T. Evjey, & Harvey E.
Finkel)
Santiago Paredes
G. Richard Paul
Edward W. Pellkan
P. Anthony Penta
Ervin Phillips
Peter E. Pochi
Burton J. Polansky
Peter R. Polgar
Alberto L. Pollof
Michael W. Pozen
Joel Rankin
Giuseppina Raviola
Robert M. Reece
Arnold E. Reif
Jonathan Reynolds
Arnold Robbins
Stanley L. Robbins
Charles W. Robertson
Chaim M. Rosenberg
Henry N. Rosenberg
Ishadore N. Rosenberg
George Rosenthal
Henry L. Rosett
N. Paul Rosman
Leonard S. Ross
Neil B. Ruderman
Thomas J. Ryan
Hugues Ryser
Thomas D. Sabin
Arthur Safran
Harilaos Sakellarides
John Sandson
Daniel S. Sax
Karl Schmid
Charles J. Schwartz
Robert Schwartz
Norman A. Scotch
Jerome Shapiro
Irvign A. Shauffer
George G. Shipley
Tsuranobu Shirahama
Roy M. Shulman
Benjamin Siegel
Steven M. Silberstein
Elizabeth R. Simons
F. Marott Slnex
M.B. Sirotyn
James C. Skinner
Donald M. Small
L. Kent Smith
R. H. Smithwice
John C. Snow
Richard Sohn
Enrique Soto
Ginter Sotrel
Alexander S. D. Spiers
Martin L. Spivack
Gerald Stecher
William P. Steffee
J. S. Strauss
M. Stuart Strong
Philip B. Sullivan
Kotaro Suzuki
Thomas M. Sweeney
Lilia Talarico
Carter B. Tallman
Herbert M. Teager
Jorge Tello
M. P. Thakur
H. Emerson Thomas
Judith Vaitukaitis
Joseph J. Vitale
Pantel S. Vokonas
Ladislav Volicer
Carol T. Walsh
Raymond J. Walther
George W. Waring, Jr.
Philip S. White
Philip A. Wolf
Herbert H. Wotiz
John P. Wysocki
Norman Zamcheck

An alumnus for 50 years, New York resident George
Levine, M.D., BUSM '27, and his wife talk with Dean
John J. Sandson, M.D., at the Saturday Alumni Associa-
tion luncheon in the Hebert Lounge.

Members of the class of 1952 gather on the staircase of
the Castle at the Charles River Campus on Alumni
Weekend. They are left to right: (first row) Leonard J.
Cibley, Alvin N. Eden, Henry H. Frenkel, Murray M.
Freed, outgoing president of the Alumni Association;
(second row) Nicholas A. Giosa, Frank J. Guatlerii, Alan
S. Cohen, E.D. Angulo; (third row) Seymour A. A.
DiMare, Sidney Chason, Herbert L. Sperling, William J.
Shapiro; (fourth row) Juan A. Noguera, Arthur H.
Levere, Carl Nelson, Joseph Steg; (fifth row) H. Leon
Taylor, Robert J. Hambin; (top row) Charles J.
Schissel, William J. Cummings.
Alumni provide BUSM with ongoing support

Listed below are the names of alumni who through their generous financial support to the School earned membership in the Dean’s Club, the Anniversary Club or the Century Club. Membership in these clubs is offered for only one year at a time, and many of these members have supported the School for years through annual renewal of their gift.

Dean’s Club membership is open to all alumni who, through their annual gift of $1,000 or more, express their desire to serve as committed and informed advocates of BUSM. Anniversary Club members are alumni who contribute $500 or more to the Annual Fund, and membership in the Century Club, which continues to rise dramatically each year, is open to alumni who have contributed from $100 to $499 to the Fund.

### DEAN’S CLUB

**As of April 30**

<table>
<thead>
<tr>
<th>Name</th>
<th>Year</th>
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<tbody>
<tr>
<td>Louis J. Aiello ’35</td>
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<tr>
<td>Minoru Araki ’53</td>
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<td>Rosalie Meissner-Auster ’65</td>
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<td>Marvin B. Bacaner ’53</td>
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<td>Donald Barkan ’45</td>
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<td>John H. Bechtel ’50</td>
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<td>Arnold Blake ’50</td>
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<td>Walter J. Brodzinski ’64</td>
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<td>Leonard J. Ciblcy ’52</td>
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<td>Martin J. Coyne ’69</td>
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<td>William F. Croskery ’37</td>
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<td>Andrew B. Crummy, Jr. ’55</td>
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<td>Timothy L. Curran ’39</td>
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<td>Norman W. Elton ’26</td>
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<td>William Franklin ’46</td>
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<td>Murray M. Freed ’52</td>
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<td>Henry H. Freinkel ’52</td>
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<td>Charles E. Gilpatrick ’46</td>
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<td>Philip T. Goldenberg ’46</td>
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<td>Jeffrey H. Harris ’50</td>
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<td>Peter F. Jeffries ’60</td>
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<td>Michael J. Kannan ’33</td>
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<td>Phyllis Koteen ’42</td>
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<td>David H. Kramer ’60</td>
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<td>Martin B. Levene ’50</td>
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<td>Ethel Levine</td>
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<td>S. J. Lloyd ’42</td>
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<td>Bruce W. Lowney ’68</td>
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<td>Joseph E. Magaro ’61</td>
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<td>Julian Mandell ’48</td>
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*Marvin B. Bacaner ’53
*P. Anthony Penta ’51
Norman S. Stearns ’47

### ANNIVERSARY CLUB

**As of June 15**

<table>
<thead>
<tr>
<th>Name</th>
<th>Year</th>
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<tbody>
<tr>
<td>Jeanne F. Arnold ’61</td>
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<tr>
<td>Rachel Hardwick Burgess ’25</td>
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<tr>
<td>R. Clement Darling ’53</td>
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<td>Arnold Goldenberg ’54</td>
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<td>Malcolm Gordon ’48</td>
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<td>Theodore B. Greenfield ’44</td>
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<td>Robert J. Hamblin ’52</td>
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<td>Marvin B. Krims ’51</td>
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<td>Sanford W. Udys ’44</td>
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<td>Alan D. Weiner ’52</td>
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*Lifetime Membership

### CENTURY CLUB

**As of April 30**

<table>
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<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Barry M. Manuel ’58</td>
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<td>Bennett Miller ’51</td>
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<td>George H. Nip ’45</td>
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<td>Helen A. Papaioanou ’53</td>
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<td>Anthony V. Porcelli ’55</td>
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<td>Frank Ratner ’47</td>
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<td>Gilbert J. Rose ’47</td>
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<td>William J. Shapiro ’52</td>
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<td>Steven P. Shearing ’64</td>
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<td>Edward Spindel ’53</td>
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<td>Jacob Swartz ’46</td>
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<tr>
<td>Bernard Tolnick ’43-A</td>
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<tr>
<td>Jerome D. Waye ’58</td>
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**As of June 15**

<table>
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<tr>
<th>Name</th>
<th>Year</th>
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<tbody>
<tr>
<td>Robert L. Berger ’56</td>
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<tr>
<td>Nathan L. Fineberg ’30</td>
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*Lifetime Membership

<table>
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<tr>
<th>Name</th>
<th>Year</th>
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<tr>
<td>James E. Fitzgerald ’54</td>
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<tr>
<td>George Levine ’27</td>
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<tr>
<td>Juan A. Nogueira ’52</td>
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<td>Vincent J. Russo ’64</td>
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<tr>
<td>Charles J. Schissel ’52</td>
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<tr>
<td>Frances Hayward Smith ’43</td>
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J. Paul Babineau ’64
Thomas C. Bagnoli ’64
Cambiuzz C. Baker ’67
David A. Bailey ’67
Arnold J. Bajek ’53
G. Robert Baler ’50
Arthur Barnas ’55
Armando Barreto ’53
G. Curtis Barry ’63
Marshall S. Bedine ’67
William H. Beekley ’66
John Belsky ’34
Salvatore J. Benivegna ’42
Fred Benton ’45
Jeffrey L. Berenberg ’68
H. Arthur Berson ’31
Bernard J. Berstein ’72
Abraham I. Binder ’40
David W. Bishop ’46
Nadya Konikov Bleisch ’50
Harold P. Blum ’53
S. Arthur Boruchoff ’51
George K. Boyd ’55
James G. Boyd ’39
Robert C. Boynton ’45
George C. Branche, Jr. ’48
Donald C. Brody ’56
Hope N. Brown ’59
Robert S. Burroughs ’64
Robert J. Carey ’54
Andrew C. Carr ’61
Muriel Case-Downer ’29
David F. Casey ’62
Marion Macdonald Castagno ’43-A
William J. Cates ’58
Daniel S. Chaffin ’55
Edmond E. Charrette ’62
John J. Chiarezza ’58
Yi-Chuan Ching ’58
William A. Christmas ’65
Otto L. Churney ’28
A. B. Chishko ’51
John P. Cleary ’62
Charles T. Cloutier ’65

64 CENTERSCOPE/SPRING-SUMMER/1977
Robert F. Kenerson '65
Gay Bong Kim '22
Robert M. Kim '60
Burton I. Korelitz '51
Roger L. LeMaire '62
Ernest W. Lowe '53
Edward W. Luka '58
William P. Luke '55
Charles Mahanor, Jr. '54
Frank I. Marcus '53
Samuel L. Marnoy '17
Francis C. Mason '54
Luigi Mastroianni, Jr. '50
Marion Dallas Mastroianni '22
Joseph C. Merriam, Jr. '51
Herbert Mescon '42
Richard C. Newell '56
David F. O'Brien '40
Carl A. Olsson '63
William A. O'Shea '49
Henry T. Oyama '57
Clement E. Papazian '57
Nicholas T. Phillips '44
Joel S. Rankin '57
Iver S. Ravin '40
Richard J. Rihn '51
Kenneth J. Ritter '58
Nicholas D. Rizzo '44
Enid K. Rutledge '29
Peter L. Sapienza '43-A
Albert V. Saradarian '29
S. Albert Sarkisian '43
Max G. Sherer '50
Anna Silverman-Boruchoff '49
John J. Slattery '29
Ladislaus B. Slysz '27
William E. Smith '65
M. Jerome Strong '56
David T. W. Sung '70
Charles E. Teebagy '84
Ellsworth A. Twible '47
Anthony D. Vamvas, Jr. '46
Joseph P. Van Der Maulen '54
Francis E. Watat '83
Donald O. Ward '47
Eugene P. Whittier '52
Roland P. Wilder '36
Konstantine G. Yankopolus '42
Lily Moo Young '65

CLASS NOTES
BUSM

1917
LOUIS P. LEUNG writes from Hong Kong, "Before the second world war, I was working in a mission hospital in the interior of East China about 200 miles from Shanghai. When the fighting spread to our work, we were forced to evacuate. I took my family and fled to the southern part of the country. Finally we came to Hong Kong. Three years later, this island fell into Japanese hands. We had to steal to the interior of the country again until the war was over. After the war, I came out to the coast city, Canton, and started a practice of my own. I got along fairly well with a hope to recover gradually what I have lost during the war days. My practice went on smoothly for several years; then suddenly the Communists occupied the city of Canton and we had to get away from that city. We again came to this British Island, Hong Kong, for shelter. Being a (medical school) graduate from U.S.A. I was not eligible to practice medicine on this Island. I am about 85 years old now, and living with my sister-in-law."

1924
HARALAMBIE G. CICMA, a dermatologist who had practiced medicine in Providence, R.I., since 1926, died on March 24, 1977, at Massachusetts General Hospital, Boston, after an extended illness. Born in Greece, Dr. Cicma immigrated to the United States in 1913 where he first settled in Newport, N.H. Before coming to BUSM, he attended Boston University and Harvard Medical School. A pioneer in the research and development of crude coal-tar preparations for the treatment of skin diseases, he established the first dermatological clinic and was appointed chief of dermatology of the Homeopathic Hospital (now the Roger Williams General Hosp.) in Providence. He retired from the post in 1969 after 40 years of service. During World War II, Dr. Cicma served as dermatologist for Medical Advisory Board No. 3 of Rhode Island and was recognized for professional service with numerous awards and citations. A member of the Massachusetts and Rhode Island Medical Societies and the American Medical Association, Dr. Cicma is survived by his wife, a son, and three daughters, including the wife of R. Clement Darling BUSM '53 of Boston, Mass.

1925
HARRIS E. BOWMAR of North Scituate, Mass., received his 50-year citation from the American Medical Association this year. NICHOLAS J. CAPECE of Milford, Mass., recently received his 50-year pin for a half century in American medicine. Capece is still in active practice and doing much work in menopause and hormone studies.
1927
L.B. SLYSZ writes from New Britain, Conn., "50 years of general practice and still working hard. The demand for general practice is high. My grandson, Joseph Melna, is entering BU as a freshman."

IRVING H. UVITSKY, living in Bridgeport, Conn., retired from practice in November, 1976.

1928
LAWRENCE A. PUTNAM of Holyoke, Mass., retired in 1970 and spends his summers at Orr's Island, Maine.

1929
ANGELO L. GENTILE writes from New Haven, Conn., that he is still in active practice and hopes to attend "our Fiftieth."

1930
NATHAN L. FINEBERG of Newton Center, Mass., has been appointed for four years as trustee of the Boston Medical Library in the Francis A. Countway Library of Medicine.

1931
CARL V. LENDGREN writes from Torrance, Calif., "After 46 years of practice, I have been forced to retire because of health reasons. Illness has depleted my economic resources, but not my interest in and fond recollections of BUM. Best wishes to my classmates and all you neophytes."

1932
GEORGE FERRÉ is now fully retired and living on Silver Acres, his farm near Ocala, Fla.

1933
NICHOLAS PADIS writes from Philadelphia, Pa., that in August, 1976, he delivered a paper titled "The Legacy of Byzantine Medicine" at the International Congress of the History of Medicine in Quebec, Canada.

1934
MARGARET R. SIMPSON of Cape Elizabeth, Maine, has been retired for two years now.

1935
BERNARD M. HALBSTEIN writes, "I have just completed 25 years as director of the Department of Orthopaedic Surgery at Monmouth Medical Center in Long Branch, N.J. I continue in active practice, but now without administrative burdens."

OLGA GAVRILUK LITTLE writes from Willimantic, Conn., "I'm still actively involved in practice, despite joining Medicare. I'm serving as medical director of Natchaug Psychiatric Hospital, Inc., Willimantic."

1936
WILLIAM W. WAINER is now serving in the Emergency Department at Holy Cross Hospital, Fort Lauderdale, Fla. After 40 years in practice in Malden, Mass., ROLAND P. WILDER is retiring to Chatham, Mass., in July. He writes, "In good health, but want to enjoy the Cape."

1937
SIDNEY EIGNER is semi-retired and enjoys living in Surfside, Fla.

SAMUEL E. PAUL has been working as a psychiatrist for the Fresno County Mental Health Department, Fresno, Calif., since Nov. 15, 1976. He also does some teaching, and liaison with family medicine units at Valley Medical Center, Fresno.

1938
DONALD L. ANDERSON of Greene, Maine, husband of DOROTHY SPERLING ANDERSON, also BUM '40, died March 26, 1977, of acute bilateral viral pneumonia at Central Maine Medical Center. At the time of his death, he was president-elect of Maine Medical Society and vice-president-elect of the staff of Central Maine Medical Center, where he was urologist in chief. Besides his wife, he is survived by three daughters, three sons, his mother and one brother.

RUTH M. and FRED A. ANDERSON write from Norwich, Conn., that their son, Frank L. Anderson, graduated from Tufts University this spring and will enter BUM in the fall.

1939
ALCID F. DUMAUS is chief of staff at Jefferson Hospital in Louisville, Ky.

1940
MARTIN L. BRADFORD writes from Norwood, Mass., "All five kids are married, all with kids. So now we have eight grandchildren. My wife and I play a lot of tennis and still ski whenever and wherever there's snow—and fish for tuna in the summer. Still cuttin' and sewin'!"

1941
COL. SAUL C. HOLTZMAN writes, "Completing a challenging and rewarding active duty tour with U.S. Army, Europe. Next year, back to private practice of psychiatry in St. Petersburg, Fla. Found several BU alumni in Europe. Best wishes to everyone."

1942
EDNA H. SOBEL of Bronxville, N.Y., writes, "Still in pediatric endocrinology, director of that Division in the Department of Pediatrics. Albert Einstein College of Medicine; professor of pediatrics, trying to keep up-to-date for teaching endocrine pathophysiology to our students."

1943
CARL V. LENDGREN, of Ipsil., N.Y., sends this report on his children: son Gary, practicing dentistry; son Jack, teaching at Skidmore College; son Peter, graduating dental school; son Paul, student at Harpur College.

1945
After 30 years in family practice in Fitchburg, Mass., FRED W. BENTON has relocated to Surprise, Fla.

1946
STEPHEN R. LOVERME writes from Glen Ridge, N.J., "My son, STEVE, JR., is senior resident in neurology in Denver, Colo., and hopes to start a fellowship at the Veterans Administration Hospital in Boston in July, 1977. He graduated from BUM in the class of '73 (six-year medical program). Son #2, Paul, graduated from BU's College of Liberal Arts also in '73 and is now a junior at New Jersey College of Medicine after spending three years in Guadalajara, Mexico. Another son, Bill, is in Mexico in his third year of medical school in Guadalajara, and we hope he will be able to transfer to an American medical school next summer. Our fourth child, a daughter, Mary Lou, is now a senior in the physical therapy department.
at Ithaca College. She will be doing a clerkship in Boston this summer—in fact, it seems that all the children are drifting back to our 'home town.'

JOHN W. MOSES has been associate director of medical affairs at Akron City Hospital, Ohio. He served previously as director of medical education at Mount Carmel Mercy Hospital and Medical Center in Detroit, Mich. He has held staff appointments with Albany Veterans Administration Hospital, New York, Harper Hospital, Detroit; and Rehabilitation Institute Metropolitan, Detroit. He also had a private practice in internal medicine in Detroit.

STANLEY H. CATH, BUSM '46, and NORMAN S. STEARNS, BUSM '47, have been awarded the medal of meritorious merit by the Order of St. Lazarus of Jerusalem in appreciation of their contribution to teaching and research in the field of aging. Dr. Cath is currently an associate clinical professor at Tufts University, Boston; and Dr. Stearns is director of Continuing Education at the School of Medicine, Tufts.

1947

In the past 12 years, SETRAG A. ZACARIAN of Longmeadow, Mass., has been the author of three books and some 30 papers on cryosurgery for skin cancer; he has also invented several cryosurgical instruments for the treatment of malignant tumors.

BETTY J. BAMPORTH is currently assistant dean for Student Affairs at the University of Wisconsin Medical School in Madison.

ROGER M. COLE is in his 28th year of microbiological research at the National Institutes of Health. His family is living in Bethesda, Md., and four of his five children are now through college, "none in medicine—yet."

MARVIN J. HOFFMAN of Rochester, N.Y., has been elected vice chairman of the board of directors of First Federal Savings and Loan Association, "the largest savings and loan association in New York state."

Patients have established the Marvin J. Hoffman Scholarship at the University of Rochester School of Medicine. His son, William Yanes Hoffman, is graduating from the University of Rochester School of Medicine this year; he has a surgical residency at the University of California at San Francisco.

1948

ANTHONY R. GABRIEL writes, "I continue as a staff psychiatrist (assistant attending) at Bellevue Hospital Center, Psychiatric Division, New York, and also in the private practice of psychiatry in New York City."

MITCHELL R. ZAVON has been appointed medical director of the Corporate Environmental Health Department of Hooker Chemicals and Plastics Corp. in Niagara Falls, N.Y. He will have responsibility for the development of policies, programs, and procedures for protection of employees from adverse health effects that might be associated with their work, and the prevention of possible harmful toxicological effects of company processes or products on human health and the environment. During the past 26 years Zavon has worked in the areas of occupational and environmental health, toxicology, pesticides, food protection and public health, and has had experience in drug research and animal and human research related to occupational and environmental problems. He is board-certified in occupational medicine and in industrial hygiene and has published extensively in the fields of radiation, pesticides, and occupational health.

June Jackson Christmas was presented with the 1976 Award for Excellence in the Field of Public Health of the American Public Health Association. Christmas, the subject of an Alumni Profile in the winter issue of Centerscope, is commissioner of the New York City Department of Mental Health and Mental Retardation.

1950

G. ROBERT BALER of Brockton, Mass., served as president of the New England Dermatological Society, 1975-1976. He writes, "My wife Nancy and I, together with her sister, her brother-in-law, Drs. Blossom and George Sanger, are donors of the Hall of Medicine, which was sculpted by Nancy's mother, Doris Appel, and now graces the lobby of BUSM."

MICHAEL ROHMAN writes from White Plains, N.Y., that his daughter, Lisa, is to marry in August, 1977, and that his wife, Joelyn, is an experienced and busy travel agent.

LUIGI MASTROIANNI, William Goodell Professor and chairman of the Department of Ob/Gyn at the University of Pennsylvania School of Medicine in Philadelphia, is the current president of the American Fertility Society.

MAX G. SHERER writes from Bethesda, Md., "Four children: Debbie, 23, is in Jerusalem as lithographer; Lisa, 21, is a medical social worker; David, 19, a junior at Emory Univ.; Daniel, 14, in junior high school and producing school movies. Leah, wife, age undetermined—plano player and devoted chum. I am to lecture at Hebrew University in Jerusalem on July 1, on diabetes."

1951

EDWARD R. ASREGADO of Danville, Calif., is chief of ophthalmology, Permanente Medical Group. Divorced now, Dr. Asregado has four children: Raymond, 19, in London; Lura, 17, a high school senior; Steven, 13, in junior high; Edward, 11, in grade school. Asregado does research in addition to maintaining an active practice. His hobbies include tennis, swimming and travel.

HARRY W. FRITTS, JR., professor and chairman of the Department of Medicine, School of Medicine of the State University of New York at Stony Brook, has been appointed to the National Heart, Lung, and Blood Advisory Council of the National Heart, Lung, and Blood Institute in Bethesda, Md. The NHLBI is a bureau of the National Institutes of Health, one of six agencies comprising HEW's Public Health Service. As a Council member, Fritts will take part in the evaluation of NHLBI programs concerned with cardiovascular, blood, and lung diseases and will make recommendations to the director of NHLBI and the director of NIH concerning directions, goals, and priorities of these programs. His term of service runs through October, 1980.

JORGE W. MAYORAL-BIGAS of Ponce, P.R., wrote in January, "I was sorry to miss the recent alumni meeting at San Juan where Dean and Mrs. John L. Sandson were present. However, I had the unexpected visit of the 'flu' at home."

A. B. CLACHKO of Teaneck, N.J., is now chairman of the Medical Board of Hackensack (N.J.) Hospital. He is in group practice; the newest member of his group is his son, MARC A. CLACHKO, BUSM '71.

EDWARD P. KANE of Claremont, N.H., sends word that he has been elected to fellowship in the American College of Radiology, conferred April, 1977, in Houston, Texas. Also, a third man was recently added to his radiology group, which now covers five hospitals. He also built and opened a new office in February, 1977, in Charlestown, N.H.

RICHARD J. RINH writes from Pincol, Calif., "After 17 years in an old converted building, I recently moved to a new medical building. Pioneer with a male nurse practitioner. Oldest daughter, Sally, in nursing school and an OR tech. Son, Dan, graduated and employed by Northrop Corp. Youngest girl still in college."

1952

ROBERT WALKER BAIN was ordained to the Sacred Order of Priests May 28 in St. Stephen's Episcopal Church, Westborough, Mass. by the right Rev. Alexander D. Stewart, Episcopal Bishop of the Diocese of Western Massachusetts.

DIANE W. CROCKER assumes the chairmanship of the Department of Pathology at the University of Tennessee Center for the Health Sciences in Memphis on July 1.
1977. She has just completed her fourth year as professor of pathology at the University of Southern California School of Medicine and as surgical pathologist and chief of Anatomic Pathology Data Processing at the Los Angeles County General Hospital. Dr. Crocker will be the first woman chairman of the University of Tennessee Medical School and the second woman chairman of pathology in the country.

1953

RADAMEE ORLANDI-GOMEZ of Rio Piedras, P.R., informs us that he is now working as a thoracic anesthesiologist at the San Juan Veterans Administration Hospital. In 1976 he underwent a double coronary bypass operation at Hines VA Hospital in Chicago. It was such a success that he was able to start full-time work two months after surgery, completely symptomless and without medications. His wife, All, and their two boys are doing fine. The eldest son is in his second year of dental school at Indiana University. The younger boy is in his second year of high school. Orlandi-Gomez is looking forward to the 25th reunion of the Class of 1953 next year.


ARNOLD J. BAJEK writes from Summit, N.J., that his daughter Paula is a pre-med student at BU and hopes to enter BUSM in 1978.


NORMAN WEINSTEIN is now a senior attending physician in pediatrics at Bridgeport Hospital, Conn., and is assistant clinical professor of pediatrics at Yale Medical School, New Haven.

THEODORE J. MEDREK has been named corporate medical director—clinical research for Becton, Dickinson and Company, Rutherford, N.J. He has been with the company since 1969. He is a Diplomate of the National Board of Medical Examiners and a member of the faculty of New York University Medical School. He and his family reside in Hackensack, N.J.

1954

CLIFTON F. MOUNTAIN, professor of surgery and chief of the Section of Thoracic Surgery, University of Texas System Cancer Center, M. D. Anderson Hospital and Tumor Institute in Houston, Texas, was recently elected president of the International Association for the Study of Lung Cancer.

PAUL M. LERNER reports from Asheville, N.C., that he has been in the practice of urology for 16 years with four other board-certified urologists. For the year 1977, he was elected chief of staff of St. Joseph's Hospital (270 beds). Despite a myocardial infarction eight years ago, he is still going strong. "Every day is a birthday!"

FRANCIS C. MASON writes from Westwood, Mass., that at age 51, he is happy, healthy, and working hard. He has six children.

JOSEPH P. VAN DER MEULEN of Rolling Hills Estates, Calif., has been appointed vice president of medical affairs for the University of Southern California. He will also continue in his position as professor and chairman of the Department of Neurology.

1955

WILLIAM Y.W. AU has moved to the University of Arkansas Center for Medical Sciences as chief of clinical pharmacology and professor of medicine and pharmacology. He is busily involved in initiating and establishing a teaching, research and service program in clinical pharmacology in Little Rock, Ark.

GEORGE K. BOYD last July was appointed clinical assistant professor of pediatrics, Section on Developmental and Reproductive Medicine, Brown University Medical School, Providence, R.I.

GERALD E. GAULL is professor of pediatrics at Mt. Sinai School of Medicine, New York, N.Y., and chief of the Division of Human Development and Genetics, New York University Program of Basic Research in Mental Retardation. He was married in September, 1976, to Dr. Sin von Reis Altschul.

JOHN B. LITTLE of Brookline, Mass., has been appointed professor of radiology in the Department of Physiology at Harvard Medical School, Boston, Mass. Although his interests have ranged over a number of scientific areas, Little is well known for his work with polonium 210, a radioactive element, as one possible carcinogenic agent in tobacco. He has published more than 100 articles, papers and abstracts in a wide variety of journals and other publications on subjects primarily concerned with the effect of radiation on cells. He is also lecturer on radiology at Harvard Medical School and consultant in radiology at the Massachusetts General Hospital.

GORDON W. GRITTER moved to New Zealand in 1976 and is now senior consultant in psychiatry at Porirua Hospital, Wellington: he also teaches in the Clinical School of Otago University.

PAUL KAUFMAN of Waban, Mass., works for the BUSM Division of Psychiatry as director of the Medical Student Psychiatry Program. He is in the private practice of psychiatry as well.

1956

WALLACE B. LEBOWITZ is currently program director in cardiology, St. Vincent's Medical Center, Bridgeport, Conn. He was appointed assistant clinical professor of medicine, Yale University School of Medicine, New Haven.

HAROLD G. REISS, director of the out-patient psychotherapy clinic at Worcester (Mass.) State Hospital, has been appointed director of psychiatry, Bc training at the hospital. He has been a psychiatrist at the hospital since 1959 and became director of the outpatient clinic in 1967. He is a diplomate of the American Board of Psychiatry and Neurology, a member of the Boston Psychoanalytic Society and Institute, and psychiatric consultant for the Jewish Family Service for the past 12 years.

LEONARD E. SAFO and his wife, Jean, of Needham Heights, Mass., celebrate their 25th wedding anniversary in August, 1977. They have two sons—Brad, 18, a freshman at Lafayette College in Pennsylvania, and Todd, 13, an eighth grader. Safo was appointed in June, 1976, an assistant clinical professor in ob-gyn at Harvard Medical School, Boston, Mass. He enjoys a very active private practice.

1957

MICHAEL HALBERSTAM has been named Dr. Irvine Page's new "co-editorialist" on the magazine Modern Medicine. The appointment was announced in the Jan., 1977, issue of the magazine. Halberstam is an internist-cardiologist who practices in Washington, D.C., and is a member of the Institute of Medicine. (See alumni profile, pg. 60.)

JAY R. SHAPIRO of Kensington, Md., is the director for Medical and Educational Affairs at the Greater Southeast Community Hospital, Washington, D.C.

RALPH A. GODDARD writes from Encino, Calif., "I am still single. This is the year of child, adolescent and adult psychiatry. For the past 12 years I have been the medical director of the Psychiatric Clinic of the Crippled Children's Society of Los Angeles, Calif. My wife and five children are fine and we all send our best wishes to our friends from BUSM.

JOHN F. O'CONNOR, Jr., of Dedham, Mass., has been cited for distinguished medical achievements by being named a fellow of the American College of Radiology. The College awarded him a certificate of fellowship during its annual meeting and convocation in Houston in April. He is affiliated with Boston City and University Hospitals in Boston, and Kennedy Memorial Hospital in Brighton.

1958

DONALD L. KELLEY retired from the U.S. Navy Medical Corps with rank of captain on Oct. 1, 1976. He is now in the private practice of general and thoracic surgery in Woodstown, N.J. He was recently elected mayor of South Harrison Township, N.J.

JOHN M. KURKJIAN is associate surgeon at Massachusetts Eye and Ear Infirmary in Boston. He was recently appointed chief of otolaryngology at Symmes Hospital in Arlington, Mass.

RALPH P. POWELL, JR., recently became chief of the pathology service at the Veterans Administration Hospital and associate professor, department of pathology, College of Medicine, University of Kentucky, Lexington, Ky.

JOSEPH R. CATALDO writes, "Have gone from Green Beret Army doctor to quiet, retired life of family practice. Living with family in Alexandria, Va. and enjoying the serene slow pace of seven to eight hours and seven days a week. Oh, for the good of school days."

1959

LEONARD BOURAS is living in Swampscott, Mass., with wife, Ann, and their two daughters, 10 and 12. He is in his 15th year at Lynn Hospital as radiologist,
LEONARD A. GREENE is chief of the department of ob-gyn, W. W. Backus Hospital, Norwich, Conn. His wife, Joan, is a registered nurse and is teaching fifth and sixth grades. They have four children: William Lamar, 13; David, 9; Robert, 7; and Deborah, 5.

RONALD A. SCHWARTZ of Somerset, Mass., has been named town physician in Somerset. He is a practicing physician specializing in internal medicine in Fall River, Mass.

GEORGE E. GARCIA writes that he is “practicing and teaching in Boston and enjoying it. Lois is concentrating on her golf and tennis. Suzanne is a sophomore at Virginia Commonwealth University, majoring in physical education. Paul is interested in everything, especially sports.”

BURLINGTON WHITE interned at Los Angeles County General Hospital following graduation from BUMS. Then he did a residency at Massachusetts Mental Health Center in Boston from 1962 to ’65. He served in the Air Force in the Philippines from 1965 to ’67. Then he worked in community mental health and was director of a center in San Mateo County, Calif., through 1973. Since 1973, he has been in the private practice of general psychiatry in San Mateo, Calif.

RICHARD H. LITNER writes from Manila, Mass., “I continue with my solo practice of general and pediatric surgery and retain teaching positions at BUMS and Harvard. In my spare (?) time, I am engaged as a coach in the Belmont Milte Ranger Hockey Program (ages 6-8). Sandy and I grow older raising children Meryl (age 17), Jill (15) and Scott (7) as well as a St. Bernard and a cocker spaniel.

DENNIS J. SANIDAS, a specialist in radiology and nuclear medicine, was elected president of the Tobey Hospital staff in Falmouth, Mass., at its 1977 annual meeting. After serving as a commissioned officer in the U.S. Army and spending two years in diagnostic and therapeutic radiology at Fitzsimmons General Hospital in Denver, Colo., Dr. Sanidas returned to this area in 1967. Since then, he has been on the staff of Tobey, Fallworth, and Barnstable County Hospitals, and a consultant at Otis Air Force Base.

PETER N. DE SANCTIS is still practicing urology at Columbia-Presbyterian Medical Center in New York, N.Y., and is chief of urology at the Helen Hayes Hospital, Haverstraw, N.Y.

VICTOR HOCHEBERG has been in clinical practice in neurology in Hollywood, Fla., since 1967. He was made a fellow of the American College of Physicians in 1975.

WILLIAM C. GENTRY, JR., writes from Bloomington, Minn., “My academic career flourishes as associate professor of dermatology at the University of Minnesota. In March, I had a great visit and did some snorkeling in the reefs off Biscayne Bay (Miami, Fla.) with NORMA and DICK FORSTER (BUMS ’63) and their children, in conjunction with a CME teaching assignment in Fort Lauderdale, Fla.”

EDWARD PAUL ANDERSEN was married in December, 1976, to Pauline Estelle Theroux, a graduate of St. Joseph’s Hospital of Nursing, Providence, R.I. Andersen served his internship and residency at Rockland Hospital, Dallas, Texas, following his year in Hawaii and San Francisco, Calif., the couple is living in Cumberland, R.I.

CAROLINE HOWE DILMAGHANI writes from Tabriz, Iran: “I will not receive a tax deduction for this contribution, but I am very grateful to BUMS for a fine education. My husband, as dean of Azarabagedan Medical School, and I, as assistant professor of pediatrics, are immersed in the complex problems of financing and educating doctors and students. We are well settled here, and two of our three sons attend schools.”

JOHN R. MARCACCIO of Warwick, R.I., was married two years ago and now has a son, aged 10 months. Marcaccio is practicing urology in Providence and is on the faculty of Brown University School of Medicine.

VINCENT J. RUSSO writes, “I am in the practice of surgery with classmate PUTNAM P. BEECH. He lives in Hampton Falls, N.H., while I live in Newburyport, Mass., with my wife, Sheila, and our children.”

CHRIS G. PALACAS of Detroit, Mich., is currently enjoying his practice of hematology at Sinai Hospital of Detroit and is assistant professor in medicine at Wayne State University in Detroit. KINSMAN E. WRIGHT, JR., formerly with the Methodist Hospital in Houston, Texas, moved to Chattanooga, Tenn., in March and wrote to us: “I am leaving the ivy-covered hall and writing forward to a new adventure.”

DUANE L. SMITH is currently employed by the Department of State and is located in Kathmandu.

ALAIN DE LA CHAPELLE of New York City is engaged in the hospital and office practice of psychiatry in New York City and is on the teaching staff at New York Medical College. Word has reached us of the marriage of SHIRLEY MCMAHON last July to YESUGEE OYEN in Dusseldorf, Mass. She is currently an instructor in pediatrics at Harvard University and at Beth Israel Hospital in Boston. Her husband is associated with Badger-American Incorporated and is teaching structural engineering at Northeastern University. They are residing in Marblehead, Mass.

ROSALIE MEISSNER-AUSTER writes from Washington, D.C.: “Going back for another internship/residency, this time in family medicine, beginning 7/1/77. Husband, also a psychiatrist, doing same.”

Program is three years long and at the moment have no plans beyond that. Believe we’ve finally decided what we want to do when we grow up. From Idaho, N.Y., RONALD C. SULLIVAN informs us that he is part of a four-man group practice in otolaryngology featuring DOMINIC SAMPOGNA, ’65, and others. He was board-certified in 1973. He and his wife, Nancy, enjoy life with their four children (two girls, two boys) and one sailboat.

CHARLES T. CLOUTIER assumed the directorship of the U.S. Navy Civilian Investigation Program in Bethesda, Md., on Nov. 1, 1976.

BENEDICT D. T. DALY has been appointed a surgeon on the full-time staff of the New England Medical Center Hospital, Department of Cardiothoracic Surgery, in Boston, and director of the Department of Cardiothoracic Surgery at St. Elizabeth’s Hospital in Boston’s Brighton section. Daly was an assistant professor of anatomy at BUMS and served as an assistant visiting surgeon on the staff of University Hospital prior to joining NEMCH.

DAVID B. GURLAND of Tucson, Ariz., has been in the private practice of general psychiatry since 1971. He was board-certified in April, 1973, and is now medical director of a private multidisciplinary mental-health outpatient clinic. He has two children, Jeffrey, 9, and Janice, 8.

PETER A. VREES is living in New Hampshire with his wife and four children, and practices general surgery in Exeter, N.H.

MICHAEL A. BLEICHER is currently chief of the Division of Pediatric Surgery at the Mount Sinai Hospital, New York, N.Y., and assistant professor of surgery at the Mount Sinai School of Medicine.

DENNIS B. LIND writes from Honolulu, Hawaii, “I am enjoying a busy private practice in psychiatry, both in the office and in Queen’s Hospital. I am also a clinical instructor at the University of Hawaii School of Medicine in psychiatry and find that rewarding. Wish I could get to more B.U. activities, but find it's not exactly next door. Good luck in alumni drive.”

JOHN M. NIGRO is currently a member of a four-man emergency-room group practice at the Cardinal Cushing General Hospital in Brockton, Mass.; he is also a member of the board of directors and secretary of the Massachusetts Chapter of the American College of Emergency Room Physicians, and is active in emergency medical services in the greater Brockton area.

STEPHEN J. RICHTMAN is currently clinical instructor in ophthalmology at Brown University Medical School in Providence, R.I.

CAROL (MILCHENSKI) and HERBERT L. ROTHMAN had another lovely daughter.
on August 4, 1976. The baby was named Victoria Ann.

DAVID H. ZORNOW writes: "We moved to Danville, Va., in September, '76, where I have joined a group of four other urologists and two nephrologists. Iva had our third child in January, and we now have two girls and a boy."

JEFFREY B. CRANDALL has completed internal medicine residency, two years in Public Health Service (National Health Service Corps), two years full-time faculty at George Washington University School of Medicine, two years internal medicine practice in McLean, Ky., and is now relocating with his wife and four children to Cedar Falls, Iowa.

J. M. HIEBERT of Charlottesville, Va., is an assistant professor of plastic surgery at the University of Virginia, Charlottesville, and is director of the burn center and microvascular laboratory.

ROBERT P. COTE writes from Sanford, Maine. "I am active in a primary care internal medicine practice with two other internists, all board-certified, and seeking a fourth; all about same age. Anyone interested, please get in touch.

LEONARD A. ANTHONY writes from Portsmouth, Va. "The peripatetic Sharzers have finally settled in Tidewater," where Sharzer is on Eastern Virginia School of Medicine's faculty in the Department of Plastic Surgery, and is director of the Plastic Surgery Research Lab. The Sharzers have two daughters, Jessica and Rebecca.

STUART E. SIEGEL has been appointed associate professor of pediatrics and coordinator of pediatric oncology at the University of Southern California School of Medicine, and head, division of hematology-oncology, Children's Hospital of Los Angeles, Calif.

EMIL VON ARX, III, writes, "Anna, Juree and I are currently in Afghanistan, working for the Department of State in an eight-bed hospital-dispensary which is fully equipped with oxygen. I'm the overall M.D., with a staff of six, plus one other M.D. (G.P.) and a surprisingly large consultant group from various government and volunteer agencies. We love it."

STEPHEN M. SCHWARTZ has received the American Heart Association's Career Investigator's Award. A member of the faculty of the University of Washington's Department of Pathology, Schwartz received his Ph.D. in experimental pathology from the University of Washington after graduating from BUSM. His father, Robert Schwartz, M.D., is an assistant clinical professor of community medicine and medicine at BUSM.

RICHARD B. CHASET has announced the opening of an office for plastic and reconstructive surgery at the Wachusett Professional Center in Fitchburg, Mass. He is associated with the Burbank, Henry Heywood Memorial, Leominster and Nashoba Community Hospitals. He was recently discharged from the Navy, where he was a commander and held the position of chief, plastic surgery, at the Naval Regional Medical Center, Philadelphia, Pa.

1968


STEVEN R. KOHN has moved his office to 235 Prospect Ave., Hackensack, N.J.

PAUL A. LEVINE of Northborough, Mass., joined the full-time staff at University Hospital in the section of cardiology as of July 1, 1976. He received an appointment to BUSM as assistant professor of medicine as of Oct. 1, 1976.

BRUCE W. LOWNES is entering his fourth year in the practice of vascular and general surgery at the Doctors Office Building at the Medical Center. He was recently appointed director of surgery at Northeastern University Health Services and at the Eunice Kennedy Shriver Center for Mental Retardation in Wattham, Mass.

GERALD H. MARGOLIS writes from Needham, Mass., "Our second daughter, Sarah Kate, was born August 22, 1976.

ERIC BIRKEN of Fairport, N.Y., has started his practice in otolaryngology at Clifton Springs, N.Y., in the Finger Lake region of New York state.

1969

EDWARD W. FORBES of Wharton, N.J., has completed general surgery residency this year at St. Vincent's Hospital, New York City, and has started practice in Wharton. He spent two years in the Army at the Pentagon, from 1971 to 1973.

MICHAEL ALBOM has been promoted to assistant clinical professor of dermatology at New York University Medical Center. He is also chief of the chemosurgery unit (for specialized skin cancer surgery) at New York's Bellevue Hospital Medical Center. A contributing editor of the Journal of Dermatologic Surgery, he writes a feature article for each issue.

ROBERT A. DYÉ of Boston writes, "I am actively involved in planning an inpatient cardiac rehabilitation program for both children and adults with heart disease at the Massachusetts Rehabilitation Hospital. In addition, I am working with my colleagues at Massachusetts General Hospital in the development of a similar program for outpatients. I heard an excellent abstract on cardiac rehabilitation at the November American Heart Association meeting in Miami, delivered by my friend and BUSM '68 classmate, WILLIAM FRISHMAN, M.D., of New York City."

GEORGE GECERE, married to Ellen Oqintz, is director of the psychiatric clinic at Beth Israel Hospital in Boston.

WILLIAM R. GRACE has been named to the new post of chief of oncology research in the Department of Medicine of St. Vincent's Hospital and Medical Center of New York City. Grace, who served on the St. Vincent's house staff from 1969 to '71, for the past year had been an instructor in medicine at Dartmouth Medical School where he also held a fellowship in hematology/oncology at the Dartmouth-Hitchcock Medical Center. From 1971 to '74 he was a research associate in immunology, experimental immunology division, of the Naval Medical Research Institute, Bethesda, Md., serving simultaneously as a member of the Navy Medical Corps with the rank of lieutenant commander. During two of these years, he was codirector of the Institute's bone marrow transplant unit.

JON C. LOCHNER writes, "Jan and I have moved Amy, age 5, Joshua, age 1½, and my dermatology practice to Syracuse, N.Y. I am in solo practice and a visiting at the new dermatology teaching program at S.U.N.Y. Upstate Medical Center."

ELIHU L. SUSSMAN of New York City married Geraldine U. Martin in July, 1976. He is still practicing general pediatrics in the same location and was promoted in September, 1976, to assistant professor of pediatrics at the New York University Medical Center.

1970

ROBERT J. SZARNICKI is finishing up his commitment as senior registrar in pediatric thoracic and cardiovascular surgery at the Hospital for Sick Children in London, England. He will be moving to San Francisco, Calif., this summer to join the staff of Presbyterian Hospital in partnership with Arnold D. His practice will include both adult and pediatric thoracic and cardiovascular surgery.

He adds, "Just this past month I learned that I passed my boards in thoracic surgery. What a relief!"

In November, 1976, the Lahey Clinic announced the appointment of FRED A. CECERE as an associate in the Department of Internal Medicine, Section of General Medicine. Cecere had served his internship at University Hospital and was a resident at William Beaumont Hospital in El Paso, Texas, and Brooke Army Medical Center in San Antonio, Texas. Before his appointment to the Clinic, he was chief of the Department of Medicine at Butler Army Hospital at Fort Devens, Mass. He is living in Waltham, Mass., with his wife and two children.

BRIAN P. MURRAY finished his residency in anesthesia at Massachusetts General Hospital, Boston, after a six-month fellowship in medical education and has begun the private practice of anesthesia at Santa Barbara Cottage Hospital in Santa Barbara, Calif.

HAROLD S. SCHELL writes from West Trenton, N.J., of his "two beautiful daughters, one fine wife, one-half of a practice and a $20,000 malpractice premium."

RAYMOND and NANCY (73) ANTHRACITE of San Antonio, Texas, write: "Nancy will begin a fellowship in infectious disease at the University of Texas at San Antonio. Raymond will complete his fellowship in pulmonary disease at Wilford Hall USAF Medical Center and will begin with Brock AFB School of Aerospace Medicine."

MARTIN M. BRESS of Hollister, Calif., was certified by the American Board of Internal Medicine in July, 1976, and was elected one of five directors of the Hollister Community Hospital in a general
election last November. He is currently involved in a campaign to raise $1.5 million to expand hospital services and to build a new ICU/CCU.

CARL J. BROTMAN is practicing adolescent and adult psychiatry in Belmont, Mass.

PAUL COHEN, M.P.H. (UC Berkeley), is now in the National Health Service Corps in Brownsville, Calif., doing pediatrics and general family practice.

Last fall, NANCY L. SPRINE was appointed an instructor in medicine at Harvard Medical School and a clinical assistant in medicine at Massachusetts General Hospital in Boston. She previously interned for three years at Montefiore Hospital, N.Y. In 1974, she returned to Boston to begin a two-year fellowship in pulmonary medicine at MGH. Since 1974, she has been a clinical and research fellow in medicine at Harvard Medical and MGH. Her main area of interest and research is occupational lung diseases, and she has lectured extensively on her research in chronic beryllium disease, which occurs among some workers in the electronics and aerospace industries. Last year at an international conference on occupational diseases in Oslo, Norway, Sprine and P. Infante, M.D., presented an abstract summarizing their investigations on beryllium and its possible cancer-producing role.

On December 5, 1976, ELIZABETH B. WOOD became the bride of Terence Murphy, M.D., of Brookline at a ceremony in Brighton, Mass. Both are clinical instructors at Tufts University School of Medicine. They plan to continue to practice internal medicine at 1580 Beacon St., Brookline, Mass.

JOSHUA WYNNE, currently completing his cardiology training at the Peter Bent Brigham Hospital in Boston, will be staying on next year in a staff position. He previously spent two years in Korea (1973-75) fulfilling a Peace Plan commitment and travelled in the Far East. While in Korea, he learned to fly and is now a private pilot.

GREGORY BINUS and his wife, Alexandra, announce the birth of Seth's and Ari's brother, Jonathan Gabriel, on April 9, 1977. They are living in Newton Centre, Mass.

STEPHEN G. GREEN writes from Cardiff-by-the-Sea, Calif., "I will finish tour of duty with USN in June, 1977. We plan to relocate in the Worcester, Mass., area. Looking forward to a change of pace, and return to civilian life!"

In 1972 JAMES BRASIC is currently a psychiatric resident at Barnes Hospital in St. Louis, Mo.

ARTHUR E. Brawer presented a paper entitled, "Acute Monocytic Arthritis" at the December, 1976, meeting of the American Rheumatism Association in Miami Beach. Brawer was formerly an arthritis fellow at the Medical Center. He currently practices rheumatology in Long Branch, N.J.

JOYCE EASTER completed a residency in psychiatry at University Hospital last summer and entered private practice in psychiatry at 76 Cypress St., Brookline, Mass. She also was appointed clinical director of the North End (Boston) Health Center, associate professor of psychiatry at Harvard Medical School, and member of the medical staff at the Carney Hospital, Boston.

ERIC G. HONIG moved in January, 1977, from Grady Memorial Hospital, Atlanta, Ga., to Johns Hopkins University School of Medicine, Baltimore, Md., on a National Pulmonary Faculty Training grant.

ROBERT F. MEENAN writes, "Lynda and I had a baby girl on June 30, 1976, and named her Molly. We will be returning to Boston in August, 1977, and I will be working at BWH in rheumatology."

STEPHEN R. SMITH of New London, Conn., was appointed to serve on the 10-member state public health council by Gov. Ella T. Grasso in December, 1976. The council is the highest policy-making body for the state Department of Health. At age 28, Smith is the youngest physician ever to serve on the council. Before his appointment, he had been involved in investigative work, assessing quality of care in nursing homes in Connecticut. He is currently an assistant professor of family medicine at the University of Connecticut Health Center, Farmington.

R. PETER WITTMANN of Cambridge, Mass., is a member of the American College of Emergency Physicians. He will be entering the U.S. Air Force (Bryan Plan) in July, 1977.

In 1973 STEPHEN H. GOLDBERGER writes from Westminster, Calif., that he ran into his classmate, BYRON AOKI, in Sausalito, Calif., last spring.

IKONSTANTE K. YANKOPOLUS, who is practicing obstetrics-gynecology in Fort Myers, Fla., writes, "Practice is most enjoyable here in sunny south Florida. Trying to get PHIL SHARP and JIM ZUGER down here."

EVA RICARDI MAUER is currently living in Pasadena, Calif., and working as a pediatrician for the Los Angeles County Department of Public Health.

MICHAEL J. STRONGIN has just completed his chief residency in obstetrics and gynecology at the New York Hospital-Cornell Medical Center in New York City. He will be joining a busy group practice in New York City with teaching appointments at the New York Hospital and Cornell Medical School and Lenox Hill Hospital.

DAVID J. CHRONLEY writes from Narragansett, R.I., "Finishing PL3 at Rhode Island Hospital—taking orders from one-year-old son, Courtney David!"

DOROTHY CHASE has joined North River Medical Associates in Hanover, Mass., as family practitioner. The group now encompasses family practice, internal medicine and surgical consultation. Dr. Chase is also presently an instructor at BUSM.

1976

MARY KRAFT is finishing her second year as a surgical resident at University Hospital. As of July 1, she will embark on an anesthesiology residency at Massachusetts General Hospital.

Word has reached this office of the marriage last August of JEFEY R. BREITER to Ronni Sue Frohlich, who earned her master's degree in speech therapy at Boston University. The couple is living in North Yonkers, N.Y. while he interns at Montefiore Hospital in New York City.

SGD CLASS NOTES

1963—Oral Surgery

HAROLD L. MALLON of Flint, Mich., was the recipient of a special Odyssey House Award for work with drug addiction.

1969—Oral Surgery

R. DAVID SDELIN has opened a new office in Newark, N.J., with practice limited to oral and maxillofacial surgery.

1971—Orthodontics

GEORGE GINSBERG, now living in West Hartford, Conn., announces the birth of his daughter, Alison Beth Ginsberg.

1975—Orthodontics

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For further information please contact: Donna Marcy, Department of Continuing Medical Education, Boston University School of Medicine, 80 E. Concord Street, Boston MA 02118. Phone (617) 247-5602.

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