

# MEDICAL BULLETIN



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## Staff Meeting Report

### Electron Microscopy of Human Skin\*

Alvin S. Zelickson, M.D.†‡

Skin is composed of three layers: (1) an epidermis, which is a stratified squamous keratinizing epithelium; underneath this lies (2) the dermis, composed predominantly of connective tissue; subtending the dermis is (3) the adipose tissue or panniculus. The chief function of human epidermis is the formation of keratin, and it is this function which distinguishes it from other epithelial tissues. This report will be concerned primarily with the epidermis and the changes noted therein.

The epidermis varies in thickness in different regions of the body but in the main consists of five layers; from the inside outward, they are: 1) stratum germinativum, 2) stratum spinosum, 3) stratum granulosum, 4) stratum lucidum, and 5) stratum corneum. In addition, the melanocyte, or "clear cell," arises from the neural crest but is also located in the epidermis. Usually found interspersed among the basal cells of the stratum germinativum, melanocytes are the cells that form melanin, the chief pigment of the epidermis.

As seen with the light microscope, the stratum germinativum is one cell thick and is the layer in contact with the dermis. The cells of the stratum spinosum are polyhedral in the lower levels and diamond shaped as they near the surface. Above this layer is the stratum granulosum, so named because it contains numerous keratohyalin granules, which usually stain with most basic dyes. The stratum lucidum is visible only in the palms and soles; located just above it is the stratum corneum, which con-



ALVIN S. ZELICKSON

\*This report was given at the Staff Meeting of the University Hospitals on October 21, 1960.

†Medical Fellow, Division of Dermatology

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sists of several layers of keratinized cells, the outermost being called the stratum disjunctivum.

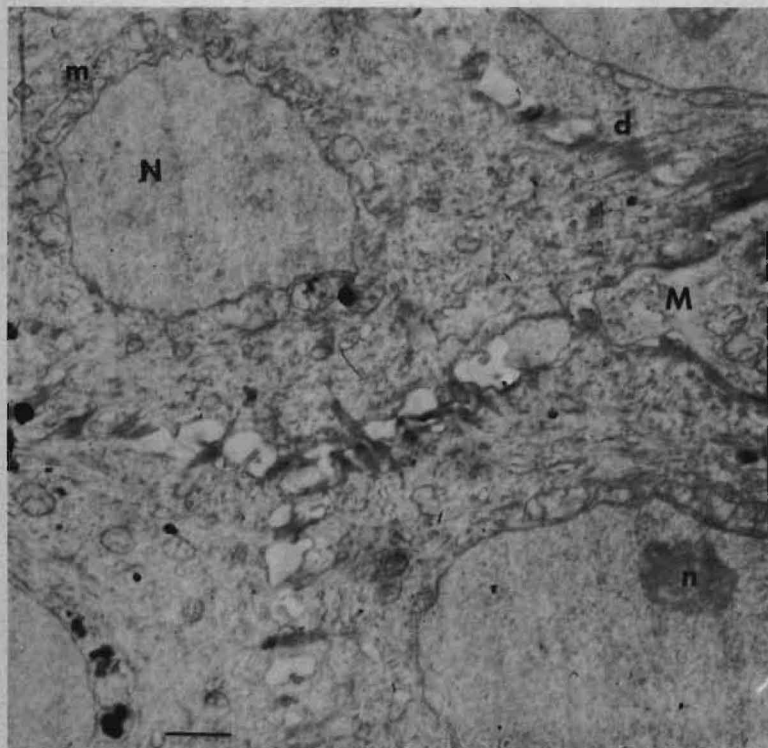


Fig. 1. A low magnification view showing "prickle" cells and a melanocyte. Note the mitochondria surrounding the nuclei, the desmosomes, and several melanin granules; d, desmosome; m, mitochondria; M, melanocyte; n, nucleolus; N, nucleus.  $\times 8,400$ . (Line at bottom of illustration denotes length of one micron.)

The electron microscope has increased the resolving power attainable in sections to 20 Å, as compared to the previous limit of 2000 Å with the light microscope. As a result, since electron microscopy has come into widespread use, many details of the fine structure of tissues have been revealed.<sup>1</sup> In thin sections, viewed with the electron microscope, it can be seen that the

nucleus consists of granular material, contains a "worm-shaped" nucleolus, and is surrounded by a double-layered membrane. The inner membrane is usually the wider, and the outer one has a rough appearance because of the numerous ribonucleoprotein (RNP) particles adhering to its cytoplasmic surface. The outer membrane is at times continuous with similar membranes located within the cytoplasm and on occasion has been shown to be continuous with the cell membrane.

Examination of the interior of the cell reveals cytoplasmic organelles which consist of mitochondria, an endoplasmic reticulum, a centriole, a Golgi apparatus, fibrils, and various inclusions (Figs. 1 and 2). These are described below in greater detail.

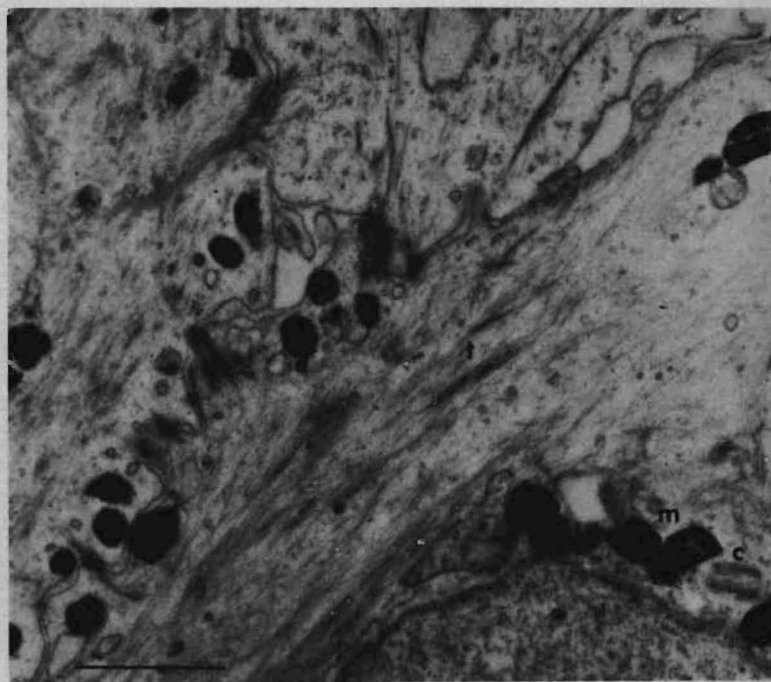


Fig. 2. A higher magnification of two basal cells and a "prickle" cell. Note the tonofilaments and centriole; c, centriole; m, melanin; t, tonofilaments.  $\times 20,000$ . (Line at bottom of illustration denotes length of one micron.)

The mitochondria are oval to filamentous in contour, and form a double layer with the inner membrane, folding inward to form shelves or cristae. Two or three electron dense particles (400 Å) are occasionally seen within the mitochondria. In skin, the mitochondria range in size from 2500 Å to 10,000 Å.

The endoplasmic reticulum consists of flattened vesicles of variable shapes and sizes which also have a rough-walled appearance owing to the minute granules (reported by Palade<sup>2</sup> to be RNP) on their outer surfaces. The cell membrane is a definite structure which at times can be seen to fold inward, thus presumably giving rise to the endoplasmic reticulum. In the skin the cell membrane is specialized and consists of numerous interdigitating processes and occasional desmosomes which hold each cell to its neighbor. A desmosome (or node of Bizzozero) consists of thickenings of apposed cell membranes, occasionally separated by two or three other dense lamellae, all of these being embedded in an osmophilic substance (Figs. 1 and 2).

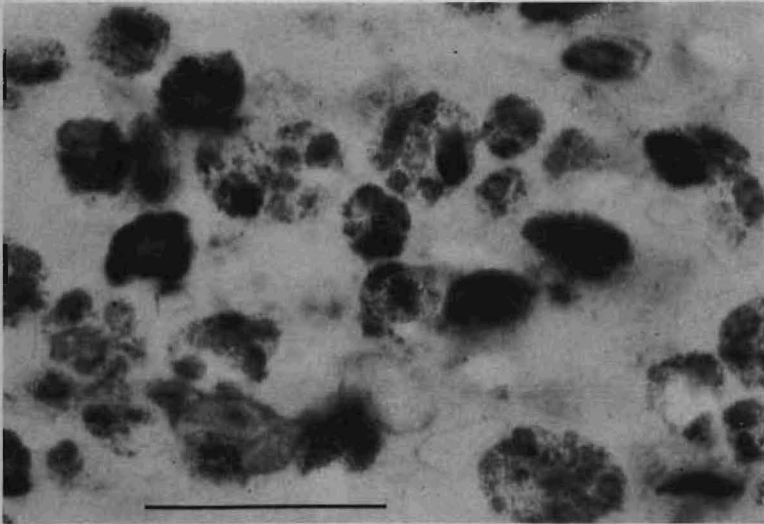


Fig. 3. Several melanin granules within a basal cell. Note their internal composition.  $\times 32,000$ . (Line at bottom of illustration denotes length of one micron.)

The Golgi apparatus is seen through the electron microscope to consist of groups of parallel, flattened, smooth-walled vesicles,

which in turn are surrounded by round vesicles of variable size (400–800 Å). In favorable sections a centriole is sometimes seen, usually at the superior pole of the nucleus; structurally, it resembles a hollow double-layered cylinder, 300–600 Å in length, which is open at both ends (Fig. 2). The epidermal cells do not show glycogen, fat, or secretion granules but do contain tonofibrils and melanin granules (Figs. 1–3).

In our attempt to describe further the fine structure of normal human epidermis, as revealed by electron microscopy, and to use this description as a baseline for the study of pathologic tissue, the following investigative procedure was employed: Tissue obtained by punch biopsy from adult white men was immediately placed in buffered osmium tetroxide and was cut into one-millimeter cubes to allow adequate fixation. The tissue was next embedded in a copolymer of the polyester group (Vestopal W) in a manner previously described.<sup>3</sup> The tissue was sectioned with a 45° angle glass knife, thin sections being placed on Formvar coated wire mesh grids. An RCA EMU-2A electron microscope was used to study the specimens.

The observations on each of the previously described layers of the epidermis will be discussed separately:

*Stratum Germinativum.* The epidermis is separated from the dermis by a fibrillar subepithelial membrane approximately 300–400 Å below the epidermis. The cells of the basal layer are columnar, with their long axes perpendicular to the surface. Each cell sends into the dermis irregular projections, each containing several smooth-walled vesicles. Desmosomes, noted along the cell membrane, serve to hold the cell to its neighbor by means of the osmophilic tonofilaments which anchor to the cytoplasmic surface of each desmosome. In the basal cells tonofilaments are plentiful (Fig. 2) and are arranged perpendicularly to the surface. Intermittent cell membrane thickenings are noted on the portion of the cell that projects into the dermis; these have been labeled as “half desmosomes,” as they are not apposed by similar structures. The nuclei of the basal cells are oval in shape, each contains a nucleolus, and are bounded by a double-layered membrane. Melanin granules are present throughout the cytoplasm but for the most part form a “cap” over the superior pole of the nucleus. Mitochondria localize around the nucleus and are also dispersed throughout the cytoplasm; they are similar to those previously described and contain several small, dense bodies. The endoplasmic reticulum is poorly developed, although the Golgi apparatus typically shows a pattern of flattened vesicles accompanied by smaller round,



smooth-walled vesicles. The Golgi apparatus is usually located at the superior pole of the nucleus, where the centriole also may be seen (Fig. 2).

*Stratum Spinosum.* In section, the cells are polyhedral in the lower levels and tend to flatten as they near the surface (Fig. 1). The nucleus is round and surrounded by a double membrane. The endoplasmic reticulum is poorly developed. The cytoplasm is granular in appearance and surprisingly, although the desmosomes remain unchanged, the tonofibrils appear to be less in number than in the stratum germinativum. Cells in the upper spinous layers contain many small, thick-walled vesicles which disappear by the time the cell reaches the granular layer.

*Stratum Granulosum.* The cells of the stratum granulosum are elongated and have their long axes parallel to the surface. The markedly folded cell membrane interdigitates with neighboring cells. Desmosomes are still present but have been brought much closer together by the folding of the membrane. A nucleus is seen on occasion along with several swollen mitochondria. The outstanding feature, of course, is the appearance of osmophilic, stellate keratohyalin granules, which encompass randomly arranged unstained tonofibrils. The Golgi apparatus and other cytoplasmic organelles are absent.

*Stratum Lucidum and Stratum Corneum.* When the epidermis is studied with the electron microscope, a stratum lucidum can be observed in all areas, not merely in the palms and soles. The stratum lucidum cell is elongated and flat with a "moth-eaten" appearance. In the stratum corneum, the cell is even more elongated, flattened, and parallel to the surface; it appears structureless, but on high magnification numerous fibrils can be seen within each squame. In these two layers the nuclei and most cytoplasmic organelles have disappeared. The cells continue to be held together by the resistant desmosomes, and only when these rupture is the cell sloughed.

*Melanocyte (clear cell).* The melanocytes are primarily located between the basal cells. Distinctive in appearance, they lack fibrils and are not attached to their neighbors. Each cell has several processes which are dispersed between the epidermal cells (Fig. 1). The nucleus is round and has two membranes. The cytoplasm contains numerous mitochondria and a well-developed Golgi apparatus. Also well-developed is the endoplasmic reticulum, which almost fills the cytoplasm. Melanin granules are occasionally seen, but surprisingly enough, fewer are found in the melanocytes than in the epidermal cells. Melanin granules consist of small, dense particles forming aggre-

gates and finally the mature granule, which is often bounded by a limiting membrane (Fig. 3).

#### DISCUSSION

The epidermis is separated from the dermis by a subepithelial membrane. This structure may help the epidermis adhere to the underlying connective tissue; it may also protect the epidermis from foreign body invasion from below, and the dermis from invasion from above.

The presence of abundant desmosomes suggests that the cells are firmly anchored to one another, thus forming a firm protective covering for the body. Only when the desmosomes finally break is the cell shed; thus the desmosomes probably play a part in diseases which are marked by abnormal shedding of cells.

Keratinization is a prime biochemical process occurring in the epidermis. Tonofibrils are present in all layers of the epidermis and are not continuous from one cell to the next. As the cells near the surface the fibrils are randomly arranged as well as thicker. They are then entrapped by the keratohyalin granules, which are probably sulfur-containing globular protein, and are brought together to form the final product, or cornified squame.

Most of the cytoplasmic organelles disappear as the cell approaches the surface. The mitochondria apparently swell and degenerate, giving rise to the numerous small, thick-walled vesicles seen in the upper levels of the stratum spinosum. The vesicles disappear by the time the cell reaches the stratum granulosum and apparently have no function in the keratinization process.

The melanocyte or "clear cell" is easily recognized as a dendritic cell which lacks fibrils and has no attachments to neighboring cells. Its cytoplasm is filled with mitochondria and a well-developed endoplasmic reticulum along with a dispersed Golgi apparatus.

Melanin granules are present in the skin and appear to be more abundant in the epidermal cells of the basal layer than in the melanocytes themselves. These melanocytes can be observed to contain several dense bodies, presumably premelanin granules. Since mitochondria have been noted to contain melanin, it is possible that under certain circumstances they can form melanin.

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### SUMMARY

1) An electron microscope study of skin has shown that the epidermis is separated from the dermis by a fibrillar "subepithelial membrane."

2) The epidermal cells contain numerous tonofilaments and fibrils which anchor to the cytoplasmic surface of the desmosomes; these probably function by attaching each cell firmly to its neighbor. When the tonofibrils reach the stratum granulosum they appear unstained and are entrapped by the keratohyalin granules.

3) The cytoplasmic organelles disappear as the cell nears the surface. When the organelles degenerate, the mitochondria apparently give rise to numerous small, thick-walled vesicles.

4) The melanocyte lacks fibrils and has no attachments to neighboring cells. Its cytoplasm is filled with numerous mitochondria and a well-developed endoplasmic reticulum. The melanin granule is composed of aggregates of dense particles.

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## Staff Meeting Report

### Treatment of Stokes-Adams Attacks by Lowering Plasma Potassium with Chlorothiazide\*

Louis Tobian, Jr., M.D.†

Stokes-Adams attacks are often very hard to treat effectively. The best drugs in their management are epinephrine or Isuprel,<sup>®</sup> but their effects are generally only transient and do not extend through the hours of sleep. Because of these limitations, the catecholamine drugs have been observed among University Hospitals patients to control attacks temporarily but rarely to afford lasting benefit. We were aware that Stokes-Adams attacks occurred in patients with elevated serum potassium levels and that these attacks could be alleviated when the potassium levels were brought down to normal. We reasoned that if the seizures could be reduced by lowering an elevated potassium level to normal, then other patients might obtain relief by having their normal potassium levels brought down to below normal.



LOUIS TOBIAN

Within the last two years a new drug, chlorothiazide, had proved to be generally very effective in producing moderate decreases in serum potassium. Large doses of chlorothiazide will usually lower the serum potassium in normal people without producing any serious side effects. As a matter of fact, this lowering of potassium is itself considered a troublesome side effect of chlorothiazide when it is utilized for the treatment of edema and hypertension. It was this otherwise undesirable side effect that we attempted to utilize in treating heart block. At the present time, we have successfully treated eight patients, all of whom had had fairly long histories of Stokes-Adams

\*Abstracted from a report given at the Staff Meeting of the University of Minnesota Hospitals on October 28, 1960

†Associate Professor, Department of Medicine, University of Minnesota

seizures. Each was given a sufficient amount of chlorothiazide to lower his serum potassium level by at least 0.6 to 1.1 mEq/liter. In every case, when the serum potassium level was lowered sufficiently, the Stokes-Adams seizures did not occur. A good result was always obtained when the plasma potassium level got as low as 3.8 mEq/liter. The lessened incidence of seizures was not accompanied by any change in the plasma pH level, even though the plasma bicarbonate rose slightly in some of the patients. Electrocardiographic tracings revealed several instances in which the degree of heart block was lessened during chlorothiazide therapy. The most striking improvement was the change from complete heart block to a normal sinus rhythm during the course of therapy. None of the eight patients experienced any significant side effects from the chlorothiazide.

Our ninth patient with seizures represents a treatment failure. When he first received chlorothiazide, his plasma potassium went down to 3.9 mEq/liter, and he was free of attacks. While on the same dosage of chlorothiazide, his potassium gradually rose to 4.5 mEq/liter, and he began having his attacks again. Although his daily dose of chlorothiazide was subsequently raised to 2500 mg., his potassium level was not brought below 4.4 mEq/liter. The fact that he continued to have seizures demonstrates that the drug's efficacy in preventing seizures is related to its ability to lower serum potassium sufficiently. Even patients who eventually obtained relief with very large doses of chlorothiazide frequently continued to have these attacks if only small doses of the drug were administered. For this reason, no given dose of chlorothiazide can be recommended for all patients. Experience thus far indicates that when the dose has been sufficient to lower the serum potassium level about 1 mEq/liter, relief from attacks has always followed. However, one can imagine that we will eventually encounter stubborn cases in which the serum potassium must be lowered by 1.5 mEq/liter before obtaining a therapeutic benefit.

Large doses of chlorothiazide do produce a negative balance of potassium during the first two or three days of administration. Moreover, balance studies on two of our patients indicate that when the chlorothiazide is discontinued, pronounced potassium retention can be observed over the next two or three days. In these two patients, the discontinuance of the drug was associated with a return of the Stokes-Adams seizures. When chlorothiazide therapy was resumed, however, the attacks no longer occurred.

Although chlorothiazide does produce a negative balance of potassium during the first two or three days, it seems to have

no important effect on the total exchangeable potassium level over long periods of time. We know, of course, that chlorothiazide therapy diminishes the *extracellular concentration of potassium*, since this is reflected in reduced levels of serum potassium. We also wanted to learn whether or not the *potassium content of the heart itself* changed in any way during the chlorothiazide therapy. Because of the difficulty of answering this question with human subjects, we sought a partial answer by means of a rat experiment: One group of rats was given fairly large doses of chlorothiazide mixed in with its food, while a control group received the same type of food without chlorothiazide. After the experimental group had received the chlorothiazide for six weeks, both groups of rats were killed and their hearts were removed for analysis. The rats which had received chlorothiazide were observed to have exactly the same level of potassium in the heart muscle as did the control group. In the same experiment, however, the level of *serum potassium was significantly lowered* in the rats receiving chlorothiazide. This would indicate that in the rat, at least, the lowering of serum potassium is *not* accompanied by a lowering of cardiac tissue potassium. Such a situation probably also obtains in the human being.

To observe the effects of chlorothiazide, extracellular potassium was reduced by about 15 to 20 per cent. Such a slight change would probably have little effect on the cardiac conduction in normal individuals. In patients with defective cardiac conduction, however, even this small change seems to have a very strong influence on the conducting tissue.

An individual with a diseased or defective conducting mechanism usually gets along very well if he is in 2:1 heart block or even if he is in complete heart block, provided that the degree of block remains constant and that his heart rate does not drop below about 34 beats per minute. Such a person may not be able to accomplish athletic feats, but he has relatively few symptoms, if his rate goes no lower. The main difficulty for such patients is that for brief periods the conduction tends to become abruptly worse, so that the heart rate goes down to 5 or 6 or even 1 or 2 beats per minute. During these periods the individual suffers a Stokes-Adams seizure. Undoubtedly, normal individuals are subject to these same influences that temporarily depress conduction, but their safety margins are so wide that even if conduction is diminished to a certain extent, it is still sufficient to transmit impulses from the SA node down to the ventricular musculature, so that no asystolic periods

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occur. Patients with malfunctioning conduction tissue, however, do not have this large safety margin; and a temporary slight worsening of conduction will bring on a period of asystole with loss of consciousness. Chlorothiazide changes the ratio of intracellular to extracellular potassium in the conduction tissue by only about 15 to 20 per cent; but this is enough to increase the safety margin, to improve conduction at times, and therefore to prevent Stokes-Adams seizures.



## Medical Foundation News

### DR. ARNOLD LAZAROW NAMED PRESIDENT OF FOUNDATION

Dr. Arnold Lazarow, Professor and Head of the Department of Anatomy, University of Minnesota Medical School, was elected President of the Minnesota Medical Foundation October 26th at the Fall meeting of its Board of Trustees.

Dr. Lazarow will serve a two-year term of office, succeeding Dr. Herman E. Drill, Hopkins, who has been president since 1958. Dr. Lazarow is a 1941 graduate of the University of Chicago School of Medicine, and holds the Distinguished Service Award of that institution. He came to the University of Minnesota in 1954 to assume directorship of the Department of Anatomy, and now lives in St. Paul. His research in cytochemistry and on the mechanism of alloxan diabetes has been termed "fundamental contributions to these fields."



DR. ARNOLD LAZAROW

Other officers elected for the 1960-62 biennium are Dr. Corrin H. Hodgson, Mayo Clinic internist (Med. '31), Vice President, and Dr. John A. Anderson, Professor and Head of the

Department of Pediatrics, Medical School (Med. '33), Secretary-Treasurer.

Five newly-elected Trustees were installed at the meeting. They are Dr. C. D. Creevy (Med. '26), Dr. Arthur C. Kerkhof (Med. '27), Dr. V. J. P. Lundquist (Med. '42), Dr. Harold O. Peterson (Med. '34), and Mr. Samuel H. Maslon, Minneapolis attorney.

An appropriation of \$250.00 was approved at the meeting as a donation to the National Society for Medical Research in behalf of the Medical School. The Trustees also took under advisement proposed amendments to the Foundation by-laws which would (1) reduce the quorum requirement at Board meetings to a simple majority of Trustees rather than two-thirds,



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(2) automatically appoint the retiring president to a one-year term on the Board of Trustees, and (3) designate the president, vice president, and secretary-treasurer as the Executive Committee of the Foundation. The proposals will be acted upon at the Winter meeting of the Trustees in January 1961.

The Board also endorsed the reports of committees on Distinguished Service Awards, Nominating, Finance, Membership, and Editorial matters.

Including the three new officers, the new Board of Trustees is composed of the following 21 persons:

L. R. Boies, M.D., Minneapolis  
Mrs. Frank W. Bowman, Minneapolis  
Dr. Donald J. Cowling, Minneapolis  
C. D. Creevy, M.D., Minneapolis  
Bernard Halper, M.D., Hibbing  
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Anderson C. Hilding, M.D., Duluth  
Milton M. Hurwitz, M.D., St. Paul  
Arthur C. Kerkhof, M.D., Minneapolis  
V. J. P. Lundquist, M.D., Minneapolis  
Samuel H. Maslon, Minneapolis  
Malcolm B. McDonald, Minneapolis  
Gerald T. Mullin, Minneapolis  
Harold O. Peterson, M.D., St. Paul  
Charles E. Rea, M.D., St. Paul  
Wesley W. Spink, M.D., Minneapolis  
R. S. Ylvisaker, M.D., Minneapolis

Ex-officio members include Eivind Hoff, Jr., Executive Secretary; Dr. Robert B. Howard, Dean, Medical School, and Dr. H. Mead Cavert and Dr. William Fleeson, Assistant Deans; Dr. Sheldon M. Lagaard, President, Minnesota Medical Alumni Association; and Mr. Ray Amberg, Director, University Hospitals.

### LOAN FUND REPORT

Over \$9,000 was loaned to 69 medical students by the Minnesota Medical Foundation during the first year of operation of the Herman M. Johnson Emergency Loan Fund.

The \$4,000 fund was provided by the Minnesota State Medical Association in memory of a pioneer Dawson, Minn., physician.

The Foundation administers 90-day loans from the fund to needy medical students without interest charges.



Largest group of scholarship winners in history of Minnesota Medical Foundation are pictured as they received awards on Sept. 26, 1960. Most scholarships were for \$500.00. A total of \$110,000 has now been distributed to 215 students since the program was launched in 1950. Dr. Herman E. Drill, Hopkins, (Med. '28), seated in front row, right, presented the 32 awards for 1960. The scholarships are made possible by direct contributions of medical organizations, corporations, alumni, foundations, and private citizens. Dr. Drill is immediate past president of the Minnesota Medical Foundation.

## Paid Your '61 Dues Yet?

### FOUNDATION MEMBERSHIP DRIVE UNDERWAY

The 1960-61 membership campaign of the Minnesota Medical Foundation is in full swing on several fronts.

Hundreds of members in all categories have already renewed their memberships, including subscriptions to the MEDICAL BULLETIN, helping the Foundation towards its stated objective: enough membership funds to underwrite the entire operating budget of the Foundation for the 1960-61 academic year.

Attainment of this goal, explained Dr. Arnold Lazarow, Foundation president, will establish a pattern of freeing all other assets of the Foundation for support of a variety of projects benefitting the University of Minnesota Medical School. He urged all past members who have not yet returned blue renewal notices received in recent weeks to do so immediately ensuring continuance of their subscription to the MEDICAL BULLETIN, and taking advantage of the tax deductibility of all gifts and contributions to the Foundation.

In a new approach to medical alumni, aimed at avoiding duplication, the Foundation this Fall has combined a membership appeal with the annual call for contributions to medical projects made by the Greater University Fund. Approximately 3,000 graduates of the medical school who are not now members of the Foundation have received the specially-prepared brochure and combined appeal. With a single gift they can (1) obtain membership in the Foundation, and (2) support a medical research or service project of their choice from among 33 such projects backed by the G.U.F. Early response to the combined appeal has been encouraging.

More than 70 new annual pledges have been received from 210 Life Members of the Foundation who have been asked to renew their support, and a special membership drive is underway at the Mayo Clinic under the direction of Dr. Gershom J. Thompson. In December, the Foundation will repeat its efforts to enlist the membership of every full time faculty member at the University of Minnesota Medical School.

Dr. E. B. Brown, Professor of Physiology who headed the Foundation's Membership Committee last year, has again accepted the chairmanship.

## University Hospitals News

### MASONS OF MINNESOTA HONORED FOR MASONIC HOSPITAL DRIVE

Minnesota's 564 Masonic lodges and Eastern Star chapters were honored Sept. 17, 1960 by the University of Minnesota for their leadership and contributions to the construction of the Masonic Memorial Hospital, newest unit of the University Hospitals.



Past Grand Master Clyde E. Hegman, Minneapolis (above, left), accepted the University's Regents Award medal and citation for the Masons from Regent Lester A. Malkerson (right) at a recognition luncheon on the campus.

The Masons raised funds by voluntary subscription to help create the new million-dollar hospital, located one block east of the University Medical Center. Opened on October 15, 1958,

the Masonic Memorial Hospital is dedicated to patient care, teaching, and research in advanced diseases, primarily cancer. It is connected to the University of Minnesota Medical Center by underground passageway, providing access to the complete facilities of the University Hospitals.

### PROFESSOR HAMILTON BEGINS OVERSEAS MEDICAL STUDY

Professor James A. Hamilton, director of the University of Minnesota program in hospital administration, departed for the Far East in November to lead a study of U. S. State Department medical services abroad. During the winter, his group will make an appraisal of the operation and adequacy of the State Department's medical services program for foreign service personnel.

Prof. Hamilton's itinerary includes visits to U. S. embassies at Manila, Saigon, Cambodia, Bangkok, Rangoon, Nepal, New Delhi, Afghanistan, Iran, Rome, Madrid, and Lisbon. Later trips will be made to embassies in Africa, Latin America and other cities in Europe.



JAMES A. HAMILTON

### UNIVERSITY ENROLLMENT UP 7%

Fall quarter attendance at the University of Minnesota is 28,277, according to University figures released Oct. 10, indicating an increase of seven per cent over the 26,538 figure of one year ago.

There are 25,339 full time students on the Minneapolis-St. Paul campuses, 2,640 at Duluth Branch, and 238 in the new college program at Morris, Minn. The figures are just under the 28,312 peak attendance of 1947, when the post World War II "veterans' bulge" occurred.

Four hundred ninety medical students were counted in this year's compilation. There were 502 one year ago, including the unusually large graduating class of 122 seniors. The freshman class in medicine is filled to capacity with 140 students.



Twenty members of the Class of 1935 gathered to renew old acquaintances at the MMAA Homecoming Reunion.

Left to right, standing, are Drs. Leonard A. Titrud, Malcolm M. Pearson, Leonard Arling, Robert O. B. Quello, Harry B. Hall, Carlton S. Strathern, L. W. Johnsrud, Malcolm R. Johnson, Walter L. Hoffman, Larry E. Sjoström, Isadore Fisher, M. B. Sinykin, Glenn J. Mouritsen, Mrs. Ed (Dorothybelle McCree) Kaufman, Ed Kaufman, Catherine Corson West, L. F. Wasson, Larry O. Underdahl, C. P. Johnson, and John E. Skogland.

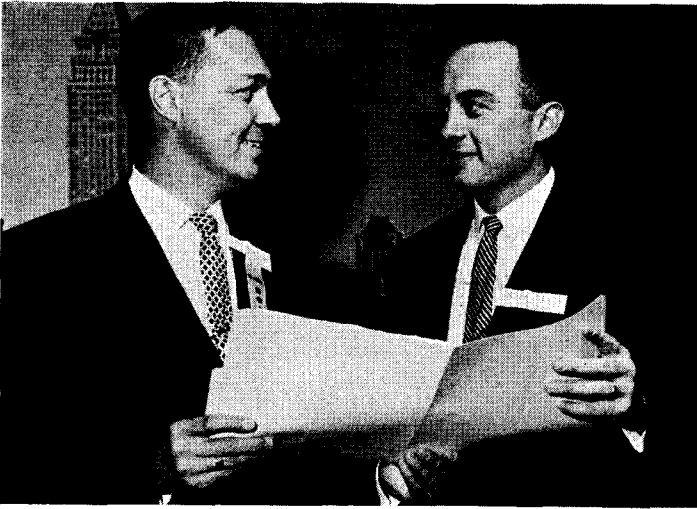
Seated (l-r) are Ruth Pearson, Marion Arling, Helen Quello, Betty Hall, Corinne Johnsrud, Vivian Johnson, Bernice Sjoström, Mrs. C. S. Raving, Mrs. M. B. Sinykin, Mrs. J. C. Mouritsen, Mrs. L. F. Wasson, Mrs. C. P. Johnson, and Harriet Underdahl.

## MEDICAL ALUMNI IN HOMECOMING REUNION

Medical School memories were vividly recalled Oct. 14 when the Minnesota Medical Alumni Association held its 1960 Annual Meeting and Homecoming Dinner-Dance at the Leamington Hotel, Minneapolis. Special guests of honor were members of the Class of 1935, noting the 25th anniversary of their graduation from Medical School at the University of Minnesota. Many of those on hand also attended the Minnesota-Illinois homecoming football game the next day, won 21-10 by Minnesota.

Dr. Sheldon M. Lagaard (Med. '43), MMAA President, was Master of Ceremonies. Elected to the MMAA Board of Directors were Dr. Clarence Rowe (Med. '42), St. Paul; Dr. Robert O. B. Quello (Med. '35), Minneapolis; Dr. Mally J. Nydahl (Med. '34), Minneapolis; and Dr. Duane O. C. Olson (Med. '37), Minneapolis.

Dr. Byron B. Cochrane (Med. '38), St. Paul, reported for the Nominating Committee, and Dr. Robert B. Howard (Med. '45), St. Paul, spoke in behalf of the Medical School, of which



Patrick J. Scanlan, right, President of the 1961 Senior Class at the Medical School, and MMAA President Sheldon M. Lagaard, checked the Reunion program.

he is Dean. Dr. Leonard S. Arling and Dr. Robert O. B. Quello, both of Minneapolis, were hosts and spokesmen for the Silver Anniversary Class.

Dr. Lagaard announced the MMAA now holds approximately \$3,700 in funds contributed by 1,599 current members. He said the Board of Directors was considering several possible projects in support of the Medical School. The Medical School has awarded more than 5,400 medical degrees. Approximately 4,000 recipients are still living, and some 2,300 are practicing medicine in Minnesota.

### **MINNESOTANS INITIATED INTO AMERICAN COLLEGE OF SURGEONS**

Among the large delegation of Minnesotans attending the sessions of the American College of Surgeons in San Francisco, Calif. Oct. 10-14, 1960 were four graduates of the University of Minnesota Medical School who were initiated into the College.

The surgeons are Dr. Roy W. Dickman (Med. '45), Minneapolis; Dr. Farrell S. Stiegler (Med. '36), Minneapolis; Dr. Harry F. Burich (Med. '47), Rochester, Minn., and Dr. Neil M. Palm (Med. '50), St. Paul.

Dr. Owen H. Wangensteen (Med. '21), Chairman of the Department of Surgery at the University of Minnesota, completed his term as President of the College at the meeting.

### **DR. THOMAS GOOD WINS PEDIATRICS AWARD**

Dr. Thomas A. Good of Baltimore, Md., (Med. '52) received the annual Ross Award for outstanding research in pediatrics at the 1960 meeting of the Western Society for Pediatric Research in Denver, Colo. He is a brother of Dr. Robert A. Good, American Legion Heart Research Professor at the University of Minnesota Medical School.

The award, consisting of a \$1,000 prize and bronze plaque, was presented for his work on pituitary adrenal relationships and connective tissue mechanisms, conducted at the Universities of Minnesota, Utah, and Maryland. Dr. Good also delivered the convention's principal address, speaking on the research for which he was honored.

Both Dr. Thomas A. Good and Dr. Robert A. Good were proteges of Dr. Irvine McQuarrie, former Head of Pediatrics at the Medical School, who is now retired and living in Oakland, Calif. Another brother, Charles H. Good, is a graduate student and teaching assistant in the Department of Anatomy at the Medical School.



## Medical School News

### CHILD PSYCHIATRY

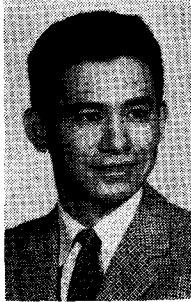
Reynold A. Jensen, Professor and Director of the Division, returned in September from a 20,000-mile tour of 11 European countries, visited during a one-year sabbatical leave. Accompanied by Mrs. Jensen, he visited medical centers, hospitals, and medical schools. He was especially impressed by the high standards of child psychiatry maintained in Denmark, Italy, and Scotland. His post-trip judgment: "The United States could learn a lot in child psychiatry from the Europeans."



REYNOLD A. JENSEN

### SURGERY

Dr. John H. Moe, Clinical Professor, was guest speaker at the Canadian Medical Association's meetings June 19-22, 1960 in Waskesiu, Saskatchewan. He lectured on "Correction and Fusion for Scoliosis in the Young Child."



EARL G. YONEHIRO

### SURGERY

Dr. Earl G. Yonehiro, former Fellow in Surgery, has joined the St. Louis Park (Minnesota) Medical Center. He is a graduate of the University of Rochester Medical School, and took advanced study at Harvard University before coming to Minnesota. Dr. Yonehiro was decorated for World War II combat service with the U. S. Army. He holds the Silver Star and Purple Heart with two Oak Leaf clusters.

Dr. Raymond C. Bonnabeau, Jr., Fellow in Surgery, is now in Antarctica accompanying an eight-man University of Minnesota geology expedition studying unexplored mountain ranges. He is serving as physician for the expedition, which will remain at the South Pole until March 1, 1961. The expedition, financed by an \$85,080 grant to the University from the National Science Foundation, will be isolated by more than 300 miles from other human beings at the South Pole, and in communication only by radio. Temperatures are expected to range down to 40 to 50 degrees below zero.

## SURGERY

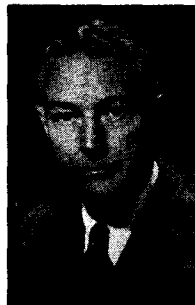
Three members of the Department of Surgery were initiated into the American College of Surgeons Oct. 14, 1960 at San Francisco, Calif. Named Fellows were Drs. Fletcher A. Miller and Alan P. Thal, Associate Professors; and Dr. W. Albert Sullivan, Jr., Assistant Professor.

Dr. Vincent L. Gott, former Instructor in Surgery, has moved to Madison, Wis., where he accepted a post in the Department of Surgery at the University of Wisconsin Medical School.

Dr. Donald L. Shahon, also a former Instructor in Surgery, and former Director of the Cancer Detection Center, has entered the private practice of surgery in Massachusetts.

## MEDICINE

Dr. Cecil J. Watson, Professor and Head of the Department, was recently decorated by the Government of Chile. He received a medal and citation declaring the recipient a "Commander of the Order of Merit of Chile," highest award that the South American nation makes to non-Chileans. Dr. Watson was in Santiago, Chile during October to lecture at an international medical conference. His award was in recognition of outstanding contributions to medicine, medical research, and medical education. Many South Americans, especially Chileans, have come to Dr. Watson's University of Minnesota laboratories to study, and his work has had a marked influence on the development of medicine in South America.



CECIL J. WATSON

## MEDICINE

Dr. C. Paul Winchell, Assistant Professor, spoke on "Management of Refractory Edema" Sept. 10, 1960 at a regional meeting of the American College of Physicians in Jamestown, N. D.

## MEDICINE

Dr. Wesley W. Spink is serving on a committee of seven nationally prominent physicians in a review of the policies, procedures, and decisions of the Food and Drug Administration's Antibiotics and New Drug Divisions. Results of the study will be evaluated by the Department of Health, Education, and Welfare.

**PHYSICAL MEDICINE & REHABILITATION**

Dr. Bror S. Troedsson was the 1960 recipient of the Southern Minnesota Medical Association's medal, given annually to an individual physician for preparing the outstanding scientific exhibit at the annual meeting of the Minnesota State Medical Association.

**PROCTOLOGY**

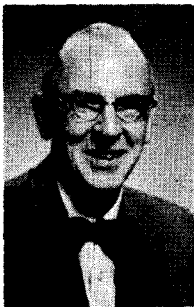
Dr. William C. Bernstein, Director, addressed the Wisconsin Academy of General Practice June 23, 1960 in Madison, Wis., on the topic "Present Day Concepts of Polyps of the Rectum and Colon." He also was a speaker last Spring before the Southwestern Minnesota Medical Association at Worthington, Minn.

**OPHTHALMOLOGY**

Dr. Hendrie W. Grant, Clinical Associate Professor, died August 5, 1960. Death resulted from complications of a rheumatic heart ailment. He was 66 years old and had been on the staff of the University of Minnesota Medical School for 25 years. Dr. Grant was a graduate of Bowdoin College Medical School, and had practiced medicine in St. Paul since 1920.

**CLINICAL PSYCHOLOGY**

Dr. Paul E. Meehl, Professor, was elected President of the American Psychological Association at its annual meeting in Chicago. He has been on the faculty of the Medical School since 1941, and was Chairman of the Department of Psychology from 1951 to 1957. In 1950 he was named one of the nation's "100 Young Newsmakers of the Future," and in 1958 was one of three winners of the \$1,000 Distinguished Scientific Contributions award of the A.P.A.



C. D. GREEVY

**UROLOGY**

Dr. C. D. Creevy, Professor and Director of the Division, was elected to the Board of Trustees of the Minnesota Medical Foundation for a four-year term extending through 1964. Dr. Creevy was in Honolulu, Hawaii, late in September to address the meetings of the Pan Pacific Surgical Society.

**ADMINISTRATION**

Dr. Robert B. Howard, Dean of Medical Sciences, delivered the Alpha Omega Alpha Lecture October 5, 1960 at the Medical School of the University of Alberta, Edmonton, Canada. His address was titled "The Aims and Responsibilities of a Medical School."

**OTOLARYNGOLOGY**

Dr. L. R. Boies, Professor and Head of the Department, was named President-Elect of the American Academy of Ophthalmology and Otolaryngology. He was also initiated into the American College of Surgeons at San Francisco, on Oct. 14, 1960.



L. R. BOIES

**BACTERIOLOGY**

Dr. Herman C. Lichstein, Professor, was appointed a member of the Science Faculty Fellowship Panel of the National Science Foundation.

**NEUROLOGY**

Dr. Fernando Torres, Assistant Professor, was appointed First Consul to the Twin Cities from the nation of Colombia. He assumed the new voluntary position in June.

**RADIOLOGY**

Dr. Richard G. Lester, Associate Professor, was re-elected Secretary-Treasurer of the Society for Pediatric Radiology at the group's annual meeting Sept. 26, 1960. in Atlantic City, New Jersey.

**MEDICINE**

Dr. Frederick Goetz, Assistant Professor, served as chairman of the Twin Cities Diabetes Detection drive conducted during the week of Nov. 14-19 sponsored by the Twin Cities Diabetes Association. Dr. Wyman E. Jacobson of Minneapolis (Med. '39) is president of the Association.

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## Alumni Notes

### ◆ 1909

**Henry W. Meyerding** served as honorary chairman of the eighth congress of the International Society of Orthopedic Surgery and Traumatology Sept. 4-9 in New York. He is among the founders of the society, and a past president.

### ◆ 1911

**William H. Hengstler** of St. Paul was given the Distinguished Service Award of the Minnesota State Medical Association. He has served as chairman of its medical advisory committee since 1940.

### ◆ 1912

**Henry E. Michelson**, widely known dermatologist, received the University's Outstanding Achievement Award Sept. 26 in ceremonies held in conjunction with Minnesota Medical Foundation Day at the Medical School. Dr. Michelson, now practicing in Minneapolis, was on the Medical School faculty more than 40 years, including 28 years as Head of the Division of Dermatology, prior to his retirement in 1957.

### ◆ 1916

**Roy E. Swanson** has retired after 44 years of practice. He began his medical career as a general practitioner in 1916 at Alexandria, Minn., and served as a major in the U.S. Army Medical Corps in World War I. In 1925 he moved to Minneapolis, becoming chief of staff at both Abbott and Fairview hospitals. He is a past president of the Minneapolis Academy of Medicine and of the Minnesota Society of Obstetrics and Gynecology.

### ◆ 1926

**Glen W. Tuttle** has returned to Africa where he heads a 210-bed interdenominational Protestant hospital at Kimpese, The Congo. He has been a medical missionary for the Baptist church for 32 years, and was in Minneapolis during September seeking medical doctors to serve the 14 million Congolese population. Dr. Tuttle, 59, is chairman of The Congo Christian Medical Relief program. He said 500 doctors, mostly Belgians, fled The Congo during the recent political turmoil, and that there are now fewer than 200 physicians in the country.

◆ 1927

**Paul G. Bunker**, Aberdeen, S. D., was elected President of the Minnesota Academy of Ophthalmology and Otolaryngology for 1960-61. Other new officers include Dr. John A. McNeill, St. Paul, First Vice President; **Dr. Benjamin Bofenkamp (Med. '43)**, Minneapolis, Second Vice President; and **Dr. Richard O. Leavenworth, Jr., (Med. '50)**, Secretary-Treasurer.

◆ 1928

**John F. Briggs**, St. Paul internist, was chairman of a panel discussion on heart disease at the 6th International Congress on Diseases of the Chest during August in Vienna, Austria. He also lectured before chest physician groups in Rome, Italy; Athens, Greece; Istanbul, Turkey; and Tel Aviv, Israel. Mrs. Briggs accompanied him throughout the five-weeks trip. **Dr. J. Arthur Myers (Med. '20)** also lectured at the Vienna meetings.

**Miland E. Knapp** was named Director of Rehabilitation in the reorganization of the Sister Elizabeth Kenny Institute. Elected to the new Board of Directors were Dr. Frederic Kottke (Med. '45), Director of the Department of Physical Medicine and Rehabilitation, University of Minnesota Medical School; and Dr. Owen F. Robbins (Med. '32), Minneapolis physician. Dr. Frank H. Krusen of the Mayo Clinic was elected President of the Kenny Foundation.

◆ 1931

**Capt. G. H. Ekblad** retired from the U. S. Navy Medical Corps on July 1, 1960. His last duty assignment was at the Marine Base, Camp Pendleton, Calif.

◆ 1932

**Bror F. Pearson** is now in practice in Shakopee with Dr. Eugene Kuz, formerly of St. Paul.

◆ 1933

**Irvin Kerlan** was elected an Associate Member of the American Dental Association for "contributions to the advancement of dentistry." He is Chief of the Research and Reference Branch, Bureau of Medicine of the U.S. Food and Drug Administration, Washington, D.C. Dr. Kerlan collects children's books as a hobby, and is founder and sponsor of a collection of original volumes of children's literature and illustrations, which is on deposit at the University of Minnesota Library.

**Vernon D. Thysell** has closed his general practice of medicine in Hawley, Minn., and begun a new general practice in Moorhead, Minn., in association with three other physicians.

◆ 1935

**Henry G. Moehring** has left Duluth to reside and practice in Pomona, California. He was commended for distinguished service as Editor-in-Chief of the BULLETIN of the St. Louis County Medical Society. Dr. Albert I. Balmer (Med. '38) was appointed new Editor-in-Chief.

◆ 1936

**J. K. Butler** was installed as Chief of Staff of the Cloquet, Minn. Community Memorial Hospital on July 5, 1960. Chief-elect is **Dr. C. E. Norberg** (Med. '27).

**Richard L. Varco**, University of Minnesota Hospitals surgeon, was elected President of the Minnesota Heart Association on July 14, 1960 for a one year term of Office. **Dr. John Moyer** (Med '43) of the Duluth Clinic, Duluth, Minn., was elected First Vice President and Dr. Jesse E. Edwards, St. Paul was named Secretary.

◆ 1937

**John Henry Aldes** is recipient of the 1959 Physicians Award of President Eisenhower's Committee on Employment of the Physically Handicapped. He was honored Oct. 11th in Charlotte, N. C. Dr. Aldes is director of the rehabilitation center at Cedars of Lebanon Hospital, Los Angeles, Calif., and is a native of St. Paul.

**Morris T. Friedell**, Chicago surgeon, has been named an associate editor of the *Journal of the International College of Surgeons*. He is a native of Minneapolis.

**Dr. John T. Pewters**, **Dr. Sherman B. Child** (Med. '52), and **Dr. John A. Hiatt** (Med. '59) are associated in the general practice of medicine and surgery at their new building located at 2645 First Avenue S., Minneapolis, Minn.

◆ 1938

**Howard R. Seidenstein**, practicing in New Rochelle, New York, was re-elected chairman of the Section on General Practice, Westchester (N.Y.) Academy of Medicine. He is a past president of the Westchester Chapter, American Academy of General Practice, and of the New Rochelle Medical Society.

◆ 1939

**Capt. Leslie G. Seebach**, U.S. Navy Medical Corps, has been reassigned to duty at the Naval Supply Center, Bayonne, New Jersey.

◆ 1941

**William B. Martin**, Duluth, was elected a fellow of the American College of Chest Physicians at the group's annual meeting June 12, 1960 in Miami, Fla.

◆ 1943

**Les N. Dale**, Red Lake Falls, Minn., announces that Dr. John Hendrickson is now associated with him in practice at the Red Lake Falls Clinic.

◆ 1944

**Donald Amatuzio** received a citation July 12, 1960 for his research in heart disease prevention. The occasion was the dedication of a \$120,000 addition to the Jay Phillips Research Laboratories at Mount Sinai Hospital, Minneapolis. Dr. Amatuzio's research has been concerned with the effects of dietary oils on the level of cholesterol in blood. Also receiving a citation was Dr. Francisco Grande, Professor, Laboratory of Physiological Hygiene, University of Minnesota, for physiological investigations of the heart and heart muscle. Dr. Owen H. Wangensteen, Chief of Surgery at University Hospitals, spoke at the dedication ceremonies.

**John B. Moyer**, Duluth internist, was elected vice president and President-Elect of the Minnesota Heart Association for the current year.

◆ 1945

**James Rogers Fox** was elected President of the Hennepin County (Minneapolis) chapter of the American Cancer Society. Dr. Leonard S. Arling (Med. '45) and Dr. Arnold J. Kremen (Med. '37) were elected to the Board of Directors.

**Edward M. Litin**, Consultant in Psychiatry at the Mayo Clinic, presented two papers before the West Virginia State Medical Association meetings Aug. 25-27. His topics were "Problems of Adolescence," and "Emotional Aspects of Physical Handicaps." Dr. Litin is also an instructor in Psychiatry in the Mayo Foundation, Graduate School, University of Minnesota.

◆ 1946

**Herschel Cope**, of the Lenont-Peterson Clinic in Virginia, Minn., has recently been certified as a diplomate of the American Board of Obstetrics and Gynecology.

◆ 1950

**George E. Nelson, Jr.** completed a fellowship in Orthopedic Surgery in the Mayo Foundation, Rochester, Minn. and was the recipient of the Ralph K. Ghormley award for special achievement in Orthopedic Surgery at the First Awards Convocation of the Mayo Foundation on June 24, 1960. **Dr. Albert L. Nisswandt** (Med. '54), who completed a fellowship in Neurologic surgery, was also honored by being selected winner of the Neurosurgical Travel Award for excellence in clinical neurosurgery at the Convocation.

THE MEDICAL BULLETIN

◆ 1953

**Thomas G. Murn** was appointed city physician at St. Cloud, Minn., succeeding **Dr. Edward LaFond (Med. '44)**, who he formerly assisted as deputy health officer.

◆ 1954

**Richard D. Granquist** completed a three year residency in orthopedics at the University of Minnesota Hospitals, and is now associated with **Dr. John C. Feuling (Med. '30)** in Duluth. **Dr. Granquist** is a native of Coleraine, Minn.

**Harold Katkov**, formerly of Minneapolis, is now associated with the Children's Medical Group in Los Angeles, Calif. He completed a residency in Pediatrics at the University of Minnesota Hospitals on July 1, 1960.

**Michael Kosiak**, Clinical Instructor in Physical Medicine and Rehabilitation at the University of Minnesota Medical School, has received a \$1,000 cash award for a research paper on the cause and development of skin ulcers which was delivered at the Third International Congress of Physical Medicine in Washington, D.C., during August. His paper was judged the best in nationwide medical research competition sponsored by the R. D. Grant Co., manufacturer of therapeutic aids.

◆ 1955

**Robert A. Callewart** is now in the third year of a four-year residency in orthopedic surgery at the Veterans Administration Hospital, Minneapolis.

**William R. Hilgedick** is now associated with **Dr. Ralph Papermaster** in practice at Two Harbors, Minn.

◆ 1956

**David I. Gottlieb** has been commissioned a Lieutenant in the Medical Corps, U. S. Navy, and is on duty at the Naval Hospital, San Diego, Calif.

**William Kozel**, formerly a staff physician at St. Joseph's Hospital in St. Paul, joined the medical staff of the Morris, Minn. Medical Center on July 1.

**Capt. Mitchell J. Rosenholtz** is on duty with the U. S. Army Medical Corps. He is stationed at the Directorate of Medical Research, Army Research and Development Laboratory, Army Chemical Center, near Baltimore, Maryland. He completed six weeks' basic medical corps training in Texas, and is now engaged in experimental pathology with particular reference to toxic chemicals of interest to the Army.

THE MEDICAL BULLETIN

◆ 1956

**George Tangen, Jr.** is a Captain in the U. S. Army Medical Corps. He is stationed in Nancy, France, after completing a three year residency in ENT at University of Minnesota Hospitals. His wife and family are with him.

◆ 1957

**Harold W. Keairnes** entered practice July 1, 1960 as an associate of Dr. Charles Grabske and Dr. Vance E. Link in Independence, Missouri.

◆ 1958

**Lt. Thomas J. Lehar, M.C., USNR,** is now attached with the Third Division, U.S. Marine Corps, and stationed at Okinawa. He interned at Minneapolis General Hospital and spent a year as a Fellow in Medicine at the Mayo Clinic before entering the U.S. Navy recently. His address is: Lt. Thomas J. Lehar, M.C., U.S.N.R., Division Schools, Third Marine Division, F.M.F., c/o F.P.O., San Francisco, Calif.

**Roger A. Mayer** is now living in Laguna Beach, Calif., while serving as a U.S. Navy Flight Surgeon with the Fleet Marine Air Force at El Toro, Calif. Dr. Mayer took a rotating internship at Duval Medical Center, Jacksonville, Fla.

**Richard L. Swanson** has begun a four-year residency in Otolaryngology at the University of Oregon Medical School Hospitals and Clinics. His period of training commenced July 15, 1960. Dick also writes that he and Mrs. Swanson are parents of their third child, Janet Lynn, born April 3, 1960, while he was interning at Womack Army Hospital, Fort Bragg, N.C.

◆ 1959

**Franklin L. Johnson** has joined the staff of the Morgan Park (Duluth) Medical Center. He is a native of Duluth and interned at Mercy Hospital, Toledo, O.

**Richard A. Meland** married **Miss Patricia Ann Nilan** of Austin, Minn. July 9, 1960 in that city. They are now living in San Antonio, Texas, where Dr. Meland is taking a residency in Radiology at Brooke General Hospital.

**Ricard R. Puumala** and **Barbara Meyer Puumala**, husband and wife, are now associated with Dr. K. H. Puumala and Dr. Marie K. Bepko in practice of medicine at Cloquet, Minn.



## ALUMNI DEATHS

**Dr. John Leo DeVine, Sr. (Med. '04)** died April 1, 1960 in Minot, N. D. He was 79 years old, had been associated with St. Joseph's Hospital, and was formerly city health officer.

**Dr. Frederic George Hubbard (Med. '03)** died April 19, 1960 of heart failure. He was 83 years old and a resident of Forman, N. D. Dr. Hubbard was a former county health officer, county coroner, and school board president.

**Dr. Jacob S. Blumenthal (Med. '23)** died suddenly July 3, 1960 of a coronary occlusion in Minneapolis, Minn. He was an Associate Professor of Medicine at the University of Minnesota Medical School, and Chief of the Allergy Clinic. In addition, he was a staff member at Mt. Sinai, St. Andrews, St Barnabas, Minneapolis General, and University of Minnesota Hospitals. He was 61 years old, had lived in Minneapolis 48 years, and was a veteran of World War I. He was born in Romania.

**Dr. Milo Phil Gerber (Med. '21)** died April 29, 1960 in West Palm Beach, Fla. He was 68 years old and died of hemorrhage from gastric ulcer. Dr. Gerber had been a practicing physician in Brainerd, Minn. and was a veteran of World War I.

**Dr. Daniel F. Noonan (Med. '13)** died July 12, 1960 at Veterans Hospital, Minneapolis. He had practiced medicine in Minneapolis for more than 40 years, and had retired in 1952. Dr. Noonan was a Captain in the U.S. Army Medical Corps during World War II. He was a native of Waverly, Minn.

**Dr. Guy F. Walter (Med. '06)** died July 16, 1960 in Minneapolis. He was buried in Lake City, Minn. where he was born 78 years ago. He practiced medicine in Farmington, Minn. and was a charter member of Phi Rho Sigma fraternity.

**Dr. James E. Fearing (Med. '45)** died July 17, 1960. He was 39 years old. Dr. Fearing was a native of Crosby, Minn. and had practiced in northern Minnesota. He was a veteran of World War II and a member of Nu Sigma Nu fraternity.

**Dr. Claude L. Haney (Med. '06)** died June 16, 1960. He was a resident of Duluth and was 80 years old. He was a Life Member of the St. Louis County Medical Society.

**Dr. John S. Hamlon (Med. '35)** died July 18, 1960 in Fergus Falls, Minn., where he had been a staff member at the Fergus Falls state hospital for the past nine years. Dr. Hamlon, 50 years old, formerly practiced in Minneapolis and St Charles, Minn. He served as a U.S. Army medical officer during World War II.

**Dr. Augusta Isabella True (Med. 1894)** died May 12, 1960 in Shawnee, Okla., of a cerebral hemorrhage. She was 96 years old.

**Dr. Robert M. Burns (Med. '06)** died June 6, 1960 in St. Paul. He was 81 years old and had practiced medicine for more than fifty years in that city, serving on the staffs of most St. Paul hospitals. For many years he was associated with the Earl Clinic. He was a past president of the Ramsey County Medical Society.

**Dr. Frank M. Manson (Med. 1899)** died June 10, 1960 at age 89. He was a pioneer physician in Worthington, Minn., where he set up a practice and established the Worthington Hospital in 1906. He was born in Minnesota and grew up in the community of Shakopee. Among survivors is a son, Dr. Melville Manson (Med. '27), Isle of Pines, Cuba.

**Dr. Edward H. Leveroos (Med.'40)** died June 19, 1960 in New Orleans, La. He was 50 years old, and a native of Superior, Wis. Dr. Leveroos served in the U.S. Air Force as a surgeon during World War II. His career included the directorship of the Division of Hospitals and Graduate Education, American Medical Association, and clinical director of the Veterans Administration Hospital in Hines, Ill. He was President-Elect of the Louisiana Hospital Association.

**Dr. Lawrence H. Heinz (Med. '41)** died in Burlingame, Calif., on March 24, 1960. He practiced in South San Francisco, Calif., and had interned at St. Joseph's Hospital, St. Paul. He was 44 years old, and a veteran of World War II.

## Memorial Gifts

Memorial gifts to the Minnesota Medical Foundation have been received recently in memory of:

**Dr. Jacob S. Blumenthal**  
Minneapolis

**Brian Short**  
Hopkins, Minn.

Memorial contributions are a practical means of honoring the memory of a friend or loved one, while helping the Minnesota Medical Foundation in the advancement of medical education and research. Appropriate acknowledgements are promptly sent to both donor and family of the deceased.

# Coming Events

University of Minnesota Medical School

## TENTATIVE LIST OF CONTINUATION COURSES FOR PHYSICIANS 1960-1961

University of Minnesota  
Center for Continuation Study

- December 1-3 . . . Orthopedic Surgery for Orthopedic Surgeons and General Physicians
- January 3-7 . . . Introduction to Electrocardiography for General Physicians
- January 26-28 . . . Otolaryngology for Specialists
- February 6-8 . . . Anesthesiology for Specialists
- February 13-18 . . . Neurology for General Physicians and Internists
- Feb. 27 March 1 . . . Pediatrics for General Physicians and Specialists
- March 13-15 . . . Allergy for General Physicians and Specialists
- March 17-18 . . . Trauma for General Physicians
- April 17-19 . . . Internal Medicine for Internists
- April 20-22 . . . Otolaryngology for General Physicians
- May 1-3 . . . Ophthalmology for Specialists
- May 8-10 . . . Gynecology for General Physicians
- May 11-13 . . . Surgery for Surgeons
- May 15-19 . . . Proctology for General Physicians
- June 1-3 . . . Office Psychotherapy for General Physicians
- 1960-61 all year . . . Cancer Detection for General Physicians

The University of Minnesota reserves the right to change this schedule without notification.

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Courses are held at the Center for Continuation Study or the Mayo Memorial Auditorium on the campus of the University of Minnesota. Usual tuition fees are \$30 for a two-day course, \$50 for a three-day course, and \$75 for a one-week course. These are subject to change under certain circumstances.

Specific announcements are sent out for each course to all members of the Minnesota State Medical Association and to any physicians who request information for a specific course, about six weeks to two months before the date of the course. For further information write to:

DIRECTOR  
DEPT. OF CONTINUATION MEDICAL EDUCATION  
1342 MAYO MEMORIAL  
UNIVERSITY OF MINNESOTA  
MINNEAPOLIS 14, MINNESOTA

Application to Mail at Second Class Postage Rate Pending at Minneapolis, Minn.

## A Word About Memorial Gifts

The **Minnesota Medical Foundation** welcomes your memorial contributions when an appropriate occasion arises. Memorial gifts serve the living and pay thoughtful tribute to the memory of a friend or relative.

The Foundation will promptly acknowledge your gifts to both the donor and the family of the deceased. The gift will help finance the Foundation's program for the advancement of medical education and research. The Medical School at the University of Minnesota will be the direct benefactor.

Gifts should be sent to the **Minnesota Medical Foundation, 1342 Mayo Memorial, University of Minnesota, Minneapolis 14, Minn.**