

## **Transactions**

## American Laryngological Association

SEVENTY-EIGHTH VOLUME



### **TRANSACTIONS**

OF THE

#### SEVENTY-EIGHTH ANNUAL MEETING

OF THE

# American Laryngological Association

1957

HELD AT
THE HOTEL STATLER
WASHINGTON, D. C.
MAY 3, 1957

PUBLISHED BY THE ASSOCIATION
St. Louis, Mo.
1957

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## American Laryngological Association

HELD AT
THE HOTEL STATLER
WASHINGTON, D. C.
MAY 3, 1957

The Seventy-Eighth Annual Meeting of the American Laryngological Association was called to order by the President, Dr. LeRoy A. Schall, at the Hotel Statler, Washington, D.C.

#### REGISTRATION

The following Fellows were in attendance:

BAKER, DANIEL C., JR. COATES, GEORGE M. BLASSINGAME, CHARLES D. CUNNING, DANIEL S. Boies, Lawrence R. DAVISON, FRANCIS W. BORDLEY, JOHN E. DIXON, FRED W. BROWN, LESTER A. EAGLE, WATT W. CAMPBELL, COLONEL PAUL A. EQUEN, MURDOCK S. CANFIELD, NORTON ERICH, JOHN B. CLERF, LOUIS H. FITZ-HUGH, GLASSEL S. FRIEDBERG, STANTON A.

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McMahon, Bernard J.

McNally, William J.

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MILLER, ALDEN H.

Moore, Paul M.

MUNOZ-MACCORMICK, CARLOS E.

Murtagh, John A.

Myerson, Mervin C.

NEGUS, SIR VICTOR

NORRIS, CHARLES M.

Ono, Jo

ORTON, HENRY B.

PROETZ, ARTHUR W.

RICHARDS, LYMAN G.

RICHARDSON, JOHN R.

ROBB, JAMES M.

ROBERTS, SAM E.

RUEDI, LUZIUS

SALINGER, SAMUEL

SCHALL, LEROY A.

SCHENCK, HARRY P.

SEYDELL, ERNEST M.

SIMPSON, W. LIKELY

SMITH, AUSTIN T.

TAPIA ACUNA, RICARDO

THEOBALD, WALTER H.

THORNELL, WILLIAM C.

TREMBLE, G. EDWARD

VAN ALYEA, OLIVER E.

WALSH, THEODORE E.

WEILLE, FRANCIS L.

WHALEN, EDWARD J.

WILKERSON, WILLIAM W., JR.

WILLIAMS, HENRY L.

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#### **GUESTS**

Lucian W. Alexander, New Orleans, La.

Samuel A. Alexander, Washington, D.C.

Victor R. Alfaro, Washington, D.C.

Juam C. Aravz, Buenos Aires, Argentina

John J. Ballenger, Winnetka, Ill.

Shirley H. Baron, San Francisco, Calif.

Charles Blase, Cincinnati, Ohio

Henry Brown, Scarsdale, N.Y.

William T. K. Brown, St. Louis, Mo.

Edgar P. Cardwell, Newark, N.J.

B. R. Dysart, Pasadena, Calif.

J. D. Evans, Memphis, Tenn.

Charles F. Ferguson, Boston, Mass.

Ellsworth L. Frye, Jamaica, N.Y.

Tierry F. Garcia, Quezon City, Philippines

Joseph L. Goldman, New York, N.Y.

Arthur J. Gorney, Boston, Mass.

Glenn Greenwood, Los Angeles, Calif.

H. James Hara, Los Angeles, Calif.

F. Harbert, Philadelphia, Pa.

Luis Alvaro, Mexico, D.F., Mexico

G. A. Henry, Toronto, Canada Victor H. Hildyard, Minneapolis, Minn. Lucien Hirsch, Plainfield, N.J. Oscar Hirsch, Boston, Mass. J. B. Hollingsworth, Oakland, Calif. Arthur C. Holmes, San Diego, Calif. Eelco Huizinga, Groningen, Holland L. G. Hunnicutt, Pasadena, Calif. Robert J. Hunter, Philadelphia, Pa. W. R. Johnston, Santa Barbara, Calif. Edley H. Jones, Vicksburg, Miss. George Kelemen, Boston, Mass. James T. King, Atlanta, Ga. John S. Knight, Kansas City, Mo. C. M. Kos, Iowa City, Ia. Sidney S. Lerner, Philadelphia, Pa. R. H. Marcotte, Nashua, N.H. J. W. McLaurin, Baton Rouge, La. Robert C. McNaught, San Francisco, Calif. Terence J. Melony, Toronto, Canada Karl M. Morgenstein, New York, N.Y. Audie Miller, Lausanne, Switzerland C. M. Napis, Portland, Ore. Tashikazu Nishihata, Tokyo, Japan George L. Pattee, Denver, Colo. W. P. Pirkey, Denver, Colo. Emery I. Pick, Los Angeles, Calif.

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#### ADDRESS OF THE PRESIDENT

#### LEROY A. SCHALL, M.D.

Boston, Mass.

Members of the American Laryngological Association and Guests:

As President of your Association, I have the honor to bid you welcome to the 78th annual meeting and to extend to you an invitation to participate in the discussion of the scientific papers that will be presented for your consideration.

May I express to the Association my appreciation for the honor that you have bestowed upon me. To be enrolled in the company of distinguished men and to serve as your president is indeed a great privilege and a great honor.

To the hard-working secretary, we owe an excellent program. To the vice-presidents, to the editor, to the treasurer, to the members of the council, I am indeed indebted for their guidance and support.

Dr. Nathan M. Pusey, president of Harvard University, in submitting his 1955-1956 annual report to the members of the Board of Overseers, stated that he assigned to himself the reading of the 130 Presidential Reports preceding his own and that from this experience he gained a strong feeling of kinship with his predecessors.

As president of the American Laryngological Association, I could do no less than follow the example set by the president of Harvard University. The reading of the presidential addresses of my predecessors has been an exhilarating and stimulating experience. My predecessors to this office were great men. They were pioneers, they were master crafsmen, scientific observers and stimulating teachers. Their presidential addresses to this association show great literary skill, are of real historical value and create, in one, a true sense of humility in attempting to address you.

In the reading of their works, we learn of the struggles, of the fears, of the aims, and of the hopes of those leaders and pioneers of yesteryear. Many of the problems of our predecessors are still with us, only in different forms. We no longer debate whether one should spend five years or ten years in general practice before specializing. We no longer believe "the best men are not entering the specialty." From my many years of association with the American Board of Otolaryngology, I know that the basic training in otolaryngology has been improved. From my contacts with the candidates for their examination, I sincerely believe that excellent men are entering the specialty of otolaryngology.

Through the efforts of the Residency Review Committee, a committee composed of representation of the Board of Otolaryngology, of the Council on Medical Education of the American Medical Association and of the College of Surgeons, only those residencies that are 36 months in duration, and give a broad and thorough training, are approved for residency training in otolaryngology.

The exception to these requirements is that one of these years may be spent in a surgical residency.

In the early days of the American Board of Otolaryngology, special emphasis was placed on the value of histopathology in the education of the otolaryngologist. Those of us who have examined for the American Board know that the teaching of histopathology has been greatly improved in our institutions.

Next, special emphasis was placed on the basic sciences and, although it was never recorded as a requirement, it was generally recognized that an academic year spent in the study of the basic sciences was desirable. This feeling was so generally accepted that many of our teaching institutions started a basic science course lasting an academic year. Those of us who have had experience in post-graduate education know only too well that an academic year was much too long and that the curriculum would have to be padded.

With the returning war veterans with their GI bill, these courses were oversubscribed and they fulfilled a useful function. However, as time ran out, applicants for these courses became fewer and fewer and most of the courses have been abandoned. It is now generally

recognized that the proper place for the teaching of basic sciences is concurrently with the residency training program. When a young man in the third or fourth year at medical school comes to you as head of your department and tells you that he is interested in otolaryngology and asks your advice as to the best road to specialization, what do you tell him? An internship of at least a year is a must, much better if it is two years. And then what? Shall it be a residency in pathology, a residency in medicine, a rotating service, a year in surgery or is he now ready after internship to accept a three-year residency in otolaryngoolgy? In discussing this problem with my residents, I find that the answer depends entirely upon the type of training that that young man has had. If he spent a year in medicine, he is convinced that a year in medicine after internship is excellent training. If he has spent a year in pathology, he, too, is just as certain that it is of great value to him. And those who have spent a year in surgery insist that that is the proper way to enter otolaryngology. Frankly, I do not know. As I watch their work in the wards, in the operating room, in the handling of patients, I have come to the conclusion that there is something besides the science of medicine that enters into the making of a successful physician.

I have been impressed by those young men who have had some general practice and know something of the art of handling patients and their problems. The art of medicine is not the sole property of any one discipline. There is something inherent in the soul that makes a man stand out above his brother. And I wonder whether or not we are playing fair and if we are not trying to shift our own responsibilities if we now demand that our residents receive part of their training under another discipline. Our predecessors were individualists. I would regret to see all of the future otolaryngologists cast from the same mold. I would like to see some room for individuality, as I firmly believe that there are many roads that lead to the making of a good physician.

Education is a continuous process. It must not stop at graduation. A three-year residency in otolaryngology is only a basic foundation on which to build. As one's interest develops, additional time should be spent in special fields of endeavor, whether these fields be in otology, plastic surgery or research, in the field of broncho-esophagology or of malignant disease. To this end we offer to certain

selected young residents a fourth, fifth and even a sixth year of specialized training.

Since the foundation of the American Board of Otoloryngology shortly after World War I, it has been the constant aim to improve the training in otolaryngology and to secure for the young men entering the specialty a good basic training. We confess that many times we have done that which we ought not to have done and have not done that which we ought to have done. I wish some one could answer the question as to why it is that only in the United States does the feeling prevail that the otolaryngologist does not measure up to his brother practiioner? This feeling does not exist in any other country that I have visited and I have visited quite a few.

During a professional career that is rapidly drawing to a close, I have never detected a feeling of superiority by those with whom I have been associated. My associates tell me that this has been their experience. I firmly believe that we as otolaryngologists, if you will permit me to quote an oft-quoted phrase, "have nothing to fear but fear itself."

In a few days there will be a meeting of the Sixth International Congress of Otolaryngology. This is the first time that it has been held in the United States and we are very proud to be hosts to our colleagues from overseas. Medicine is a common meeting ground for all races and for all creeds. We as physicians can play an important role in developing mutual understanding and respect for those of different races and of different creeds.

General Alfred M. Gunther, former Supreme Allied Commander in Europe and now president of the National Red Cross, stated in the New York Times of March 6 that "the United States needs some sort of a Medical Foreign Service or program for medicine in diplomacy and that the medical profession can play a tremendous role in building international understanding, as human misery is the same everywhere in the world." Let us then be good hosts to our brother physicians from overseas, for I see no hope in this troubled world if the physicians of the world cannot live together in peace and in good will.

And may I say a word in behalf of our foreign medical students. Everyone of you is aware that during the Second World War and

the Korean "incident," just recently declared a war, the demands of our military services depleted the ranks of our residents and interns. Had it not been for the doctors from foreign countries many of our hospitals could not have rendered their proper service to the sick. I would like to pay a tribute to these young men. I am proud of the fact that we have had residents, not only from our neighbors to the North and to the South, but from the East and from the West. All but two have returend to their native countries and there they are carrying on the practice of medicine in the American tradition. I know that their countries and their patients are grateful.

243 CHARLES ST.

# SOME UNSOLVED PROBLEMS IN AVIATION OTOLARYNGOLOGY

Col. Paul A. Campbell, USAF (MC) Washington, D.C.

During World War II it was my good fortune to appear before several of the members of this group with a paper concerning the problems of aviation otolaryngology at that time. It was most fortunate that considerable interest was generated and as a consequence a number of this group were very helpful. Some made very definite contributions. There are also a number of the organization who, while in the service of the Army, Navy or Air Corps made history in aviation otolaryngology.

The major problems at that time were protection against noise, communication in noise, aero-otitis media, aerosinusitis, selection criteria relative to the ear and vestibular apparatus, orientation and air sickness.<sup>1</sup>

These problems are in varying degree still with us; however, their relative magnitudes and their order of research priority, have changed considerably. In some instances, as is true in the noise problem, an entirely different population is affected.

Aviation, as you well know, has undergone vast changes since World War II. Altitudes achieved have increased by a factor of more than two; speeds have increased by a factor of more than three; noise levels have increased considerably; and, now to some extent at least, we have a new noise source, the transonic boom. We are reaching levels of noise which cannot be measured in decibels but must be measured in terms of atmospheres of pressure. Thus, we must now pause, review, and reinstrument to measure pressures which resemble rapidly repeating blasts.

It appears that almost every aspect of aviation is increasing expotentially. Almost every parameter, if plotted chronologically, has

followed an expotential curve. At present, more than 751,000 persons are employed in the aviation industry. Domestic airline traffic is now approaching a rate of nearly 43,000,000 paid fares per annum. International travel on aircraft from the United States is operating at a rate of more than 3,000,000 paid fares per annum. I believe we all recognize that aviation is rapidly becoming the most popular mode of medium range and long range travel in spite of the fact that the birth of aviation occurred only slightly more than half a century ago.

Cabin pressurization has solved many of the problems such as aero-otitis media and aero-sinusitis; although, we are all seeing cases from time to time. Both of the conditions are now beginning to be seen, to some extent at least, in their chronic forms especially among those who fly as an occupation. Chronic thickening of the tympanic membrane and dome-like elevations resulting from submucosal hemorrhages into the mucous membranes of the sinuses are not uncommon findings among flying personnel with many operational hours. Cabin pressurization has enabled most aircraft to fly in the still air above the weather and above the turbulent atmosphere associated with heat convection. This, and the more effective air sickness drugs, seem to have decreased the problem of air sickness. From the standpoint of most conditions, it now seems that almost anyone can fly who can get himself up the ramp onto the modern airliners.

Of interest, while on the subject of aircraft cabin pressurization, are a few statistics of one of the largest airlines of this country. These statistics compare incidence experience before the advent of pressurization and that at present with pressurization. They are shown in Table I.

TABLE I

NUMBER OF CASES PER THOUSAND PASSENGERS CARRIED

| CONDITION      | BEFORE PRESSURIZATION | AFTER PRESSURIZATION |
|----------------|-----------------------|----------------------|
| Ear Discomfort | 0.8                   | 0.2                  |
| Air Sickness   | 3.0                   | 0.65                 |
| Oxygen Want    | 1.0                   | 0.1                  |

Noise as a problem is still quite a serious one. Many of us in the aviation business wish it could be quietly charmed away but it can't.

Each advance in aviation and each innovation seems to be plagued with more and more noise and the quality of the noise seems to annoy more people.

Most of this problem resolves itself into the situation that noise seems to be an inescapable byproduct of the types and amounts of energy used in aviation and the ways they are applied. Noise, however, is wasted energy and performs no function necessary to flight. In fact, it affects materiel as well as personnel. Thus, aircraft structures and airborne equipment are adversely affected by it. The problem is a very broad one and the energies involved seem to outrun our abilities to cope with them.

In the past few years the human side of the problem has changed greatly in that those most affected are maintenance personnel rather than pilot and passengers. The noisiest aircraft while on the ground often become reasonably quiet in the air.

Protection by means of ear defenders, puffs or helmets of the individual who maintains aircraft, is reaching a point of diminishing returns as weight and bulk of the protecting material interferes with work efficiency as well as comfort. Placing the individual in a sound-proofed capsule decreases his ability to maneuver and use his tools. It is only a partial answer.

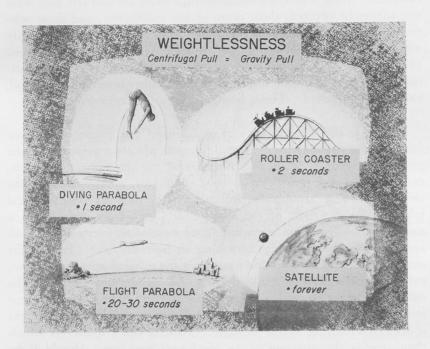
A great deal of effort is now being expended toward fundamental studies of the very basic aspects of the problem—that is basic studies of noise production, noise sources and the media through which the energy is transmitted. Thus research emphasis is being transferred from the receiver to the transmitter. Many fundamental studies are being performed on the changes in noise produced by jet stream alteration. The term noise cancellation technique, wherein the negative phase of the propagated wave is used to cancel out the positive phase, is being heard more and more often in engineering discourse. Electronic propagation of out-of-phase wave sources to cancel out extraneous wave sources, are considered. Methods by which noise can be converted into useful energy receive a great deal of attention.

In the past year personnel protection through selection, assignment and periodic recheck has received increased impetus through

more careful and more complete study of those being subjected to sound of high energy. In the United States Air Force, through official regulation, those individuals working in areas in which sound energies are sufficient to be damaging are given frequent audiometric study. If they show changes in their audiograms which indicate possible damage they are studied from the standpoint of vulnerability, and if they cannot be adequately protected from further changes they are reassigned to an area in which they will be protected.

In spite of all the effort which has been expended on the noise problem, it seems that it will take some entirely new principle or technique to solve the problem. Whether such a solution lies within the realm of physics, engineering, bioacoustics, otology or even pharmacology, it will be welcomed when it comes. I assure you that any help which can be offered by such a group as this will be appreciated.

Now, let us proceed from the problems of today to those of tomorrow and even a day after tomorrow. Aviation is now approaching a new phase, flight above the atmosphere where resistance of the medium in which flight takes place ceases to be a factor and when, given sufficient speed, a vehicle can orbit the earth more or less forever without further expenditure of energy unless, of course, it is struck by some object such as a meteor or meteorite of sufficient mass to alter its trajectory or velocity. Changes in course or return to earth will require some use of energy but as long as it orbits above the atmosphere, there will be no expenditure of energy. The satellite of the International Geophysical Year will be the first example of a manmade orbital vehicle. As orbiting represents an exact state of equilibrium between centrifugal force and gravitational pull, the vehicle and all objects on board will be in the gravity free state or in other words, weightless. With man in the gravity free state, there will be many problems. This group will be interested in the problem resulting from the effect on orientation when the gravity vector is absent, as it will be in the gravity free state. We all agree to some extent at least with the basic concept of the equilibration triad and that the three elements are the visual apparatus, the vestibular apparatus and the kinesthetic pparatus. I believe we also agree that two of the functions of the equilibration triad must be present if we are to have efficient balance and orientation. Our problem stems from the fact that two of the elements of the triad seem to depend on gravity as a moment



#### METHODS OF PRODUCING WEIGHTLESSNESS

Fig. 1.—At the top of a diving parabola a body experiences weightlessness (Zero "g") for a period of fractions of a second. The "Zoom" at the top of a roller coaster arc may produce weightlessness for a period up to two seconds. Flying a parabolic course at high speeds may result in periods as long as 30 seconds. A satellite vehicle above the atmosphere remains weightless.

of force. These, of course, are the otolithic portion of the vestibular apparatus and the kinesthetic apparatus. The question then is: what will be the effect on orientation if the gravity vector is absent?

To date, no one has developed a laboratory situation which will produce the gravity free state for more than a second or so. By flying the so-called Keplarian parabolic course, weightlessness has been produced for periods up to something in the neighborhood of 30 seconds. Individuals who have had this experience in the Gerathewohl<sup>2</sup> studies at the USAF School of Aviation Medicine fall into three

categories: those who enjoyed the strange situation and felt they were not adversely affected, those more or less indifferent, and those who were disoriented and became ill. The problem will be resolved only when we can get people into the situation for long periods of time (Fig. 1). It is of interest to mention here that many gravity substitutes such as acceleration and deceleration, either linear or tangential, have been suggested. These, however, require energy expenditure.

Now to the final category of problems of this discussion and one which I believe falls into the broad interests of this organization—the problem is reconstruction or simulation of the atmosphere. At altitudes in the region of 70,000 to 80,000 feet, compression of the thinning outside atmosphere into the cabin becomes uneconomical because of the weight of the compressor. At about these levels, a completely sealed cabin is required and man must carry along with him the constituents of the breathing air he must have. For weight economy he must use over and over again the exhaled products. Thus, carbon dioxide must be broken down into carbon and oxygen. The exhaled air must be washed of its impurities and have its water vapor removed. This must be done at the least possible weight cost as weight is always a limiting factor in flight. Among other questions which then arise is the question of an ideal breathing gas. Should it be constituted just as that at sea level? Should some of the nitrogen be removed from it? Should it contain some belium from the standpoint of middle ear and sinus ventilation? or what?

Should we ever have a manned orbital vehicle in space, how can we within our weight restrictions, reproduce an atmosphere which on our planet earth requires a delicate symbiotic relationship between chlorophyl containing plants and the carbon dioxide producers of which man is one.

I know I have raised many questions and have answered a very few. Research for the flights of the future must broaden its base to involve more disciplines as many of the ideas and problem solutions will have to come from interdisciplinary studies and from groups such as this who at this time probably consider themselves more or less remote from the problems of future flight.

FOURTEENTH AND CONSTITUTION STS.

#### REFERENCES

- 1. Campbell, P. A.: Otolaryngological Problems of Aviation in World War II. Annals of Otology, Rhinology and Laryngology 51:2:293.
- 2. Gerathewohl, S. J.: Human Tolerance to Weightlessness. Read before the Seventh Annual Congress of the Astronautical Federation, Rome, Italy, 1956.

#### DISCUSSION

Dr. Norton Canfield: Doctor Schall, Members and Guests, it is heartening to know that the author of this interesting paper, an outstanding clinical otolaryngologist, has had an abiding interest in this field for many years and is intimately associated with the rapid development in Aviation Medicine. Today he brings us up to date with current thought in this important medical specialty.

As clinicians we are professionally confronted with the first few problems which he mentions. We fully realize that much progress has been made toward the solution of the afflictions caused by pressure changes incident to flight in planes that still stay within the earth's atmosphere. Technical advances are gradually overcoming most of these health hazards.

The noise problem will surely stay with us for a long time and the comments by the author are intriguing when he mentions noise cancellation techniques and the transfer of sound energy to something more useful.

His plea for help should spur us on to provide answers. The groups in this country working on industrial noise have delved deeply into some of the factors which are present in high noise environment, and answers to some of Doctor Campbell's questions should come from them.

In speaking of tomorrow and the day after, flight above the atmosphere seems to present insuperable problems for the maintenance of human life as we know it. The conception of an environment where humans can exist without gravity or resistance of the medium will call for ideas that will tax our inventive power to the utmost. With the equilibration triad functioning in a location where the physical forces now thought necessary for their proper operation eliminated, it is interesting to speculate on the possible known adaptations which must follow. Maybe sight, equilibrium and the kinesthetic sense will no longer be needed and the human will develop some other special sense so far unimagined. Possibly the progress in space flight will start a new evolutionary trend. Possibly space flight will be the point of departure for the development of an entirely different animal.

This activity of man could start a new species, the end result of which may be eons away.

Why are aircraft not pressurized at take-off level?

This paper is thought-provoking and we would do well to cogitate on its content in order to keep up with the fast-moving world in which we find our present existence.

Dr. John E. Bordley: This is indeed a timely and challenging presentation by Col. Campbell. The problems in this vast field are changing so rapidly that a review of the recent texts on Aviation Medicine seem almost like reading ancient history. Col. Campbell speaks of atmospheres of sound, measurements in 194 db

leaps. He tells of flying the parabolic course to a complete loss of the pull of gravity. He is considering problems in gigantic equivalents.

It seems hard to believe that in World War II problems of noise were chiefly confined to that generated by piston engines and air screws. Vestibular problems could be measured by methods devised by Barany or by more refined caloric or turning chair techniques, and an individual's potentialities could be evaluated by cupolometry. Gaseous exchange could be studied in the simple pressure chamber, and the problems of oxygenation were usually solved with the low pressure oxygen system.

Some old problems are still with: 1) the common cold; 2) barotrauma—catarrhal otitis resulting from high oxygen concentration in the middle ear after high altitude flight; 3) vertigo as well as space disorientation; 4) otitis externa, which interferes with ear plug type phones; 5) noise control to improve the extra auditory symptoms of fatigue, irritability, and nausea; 6) the problem of hearing through noise; 7) the problem of improved speech for communication.

We need to know much more about communication. This can only be determined after the doctors themselves get a better realization of the problem, and learn to better interpret the records obtained through our testing techniques.

As we look into the future with Col. Campbell we see poor old homo sapiens placed in a vehicle that rushes away into space with a roar so great that it not only may kill those helping him up, but may even destroy the metal around him.

He dashes along enduring a weightless existence, truly knowing not which side is up, breathing his old discarded air which has been laundered for him, in a most chemical manner. As time goes on, he gets nowhere. He is orbiting around the same old earth, being bombarded by lethal cosmic rays, and hoping against hope he is not zeroing in on a wayward meteor, or another homo sapiens who decided to orbit in the other direction.

If man wants this, he can enlist my poor faculties to help solve some of these difficulties, to help him on his way. As for me—I'm earthbound. I'll leave the real job to Buck Rogers.

#### HOMESPUN LARYNGOLOGY

Lyman G. Richards, M.D. Cambridge, Massachusetts

A traveler returning from a far country was once questioned by his compatriots as to what had occasioned him the greatest difficulty on his journey. Had it, they asked, been the formidable mountains which had barred his way or the raging rivers which he had been forced to cross? Thoughtfully he replied that the element which had most sorely tried him had been the sand in his shoes.

Many patients who seek help from the laryngologist might metaphorically be said to constitute the "sand in his shoes." These patients present symptoms and complaints unassociated with any visible underlying pathology and lacking the interest and fascination of more obvious abnormalities. A partial list of these complaints to which I am sure you could all make your personal additions, would run as follows: a burning or choking sensation, a feeling of tightness, dryness, or itching in the nose or throat, a sense of irritation, rawness or bad taste in the mouth, a dropping in the back of the throat, a stuffiness in the nose, and that bete noire of every rhinologist, "sinus, doctor."

These and similar symptoms, bulking large in daily office practice, form a background or fabric through which run the admittedly more colorful, more medically challenging and more cleanly cut pathological entities which interlace it much as a few brightly hued threads might vivify a piece of homespun cloth. Hence my designation of this segment of our specialty as Homespun Laryngology.

Such symptoms and complaints have various characteristics in common. By and large they are essentially subjective and are unaccompanied by any consistent clinical or organic picture with which they can be dependably associated. They stand on no such demonstrable pathological ground as does hourseness due to a vocal cord

tumor, nasal obstruction due to a large polyp, dysphagia occasioned by a retropharyngeal swelling or a purulent nasal discharge accompanying a maxillary sinusitis. One must accept the patient's estimate of his complaint as to location, mode of onset, lateralization, intermittancy, and severity. Indeed even the patient is frequently vague in his account of these details, thus leaving the physician without a satisfying guide toward a diagnostic goal.

It is not, I think, any reflection on a doctor's enthusiasm for his work if he finds that a visible mass in the nasopharynx of a patient complaining of dysphasia is somehow more stimulating and interest-provoking than a puzzling lack of any overt pathology in a patient, who, perhaps all too loquaciously, tells a story of a dropping in the back of the throat. By virtue of his whole course of training and teaching the medical student tends to be lured by the unusual and picturesque in medicine. An "interesting case" has a universal appeal to a physician. The modern textbooks of otolaryngology are more apt to be concerned with the classical aspects of organic pathology than with these less consequential but far more common problems for a solution to which the physician may often search in vain.

For certain specialists within the specialty, whose reputation and skill have attracted to them smaller groups of patients with clean cut organic conditions, these homespun problems will occupy only a minor position in their practice but for the average laryngologist, they will make up at least a third of his clientele and happily or otherwise he must deal with them to the best of his ability if he is to satisfy the patient as well as his own conscience.

The laryngologist is perhaps more exposed to patients with homespun complaints than most other specialists. A visit to him, from the patient's standpoint is a simple procedure, free from time-consuming dressing and undressing, accessory examinations of the blood and urine, or electrocardiograms and x-rays. He anticipates that it will be only necessary for the doctor to look in his nose or throat, paint the latter or spray the former, and that after securing a prescription for some home medication, he can be happily on his way to a symphony concert or the matinee. Would that it were equally as simple for the physician.

To say that these complaints are unaccompanied by visible organic lesions, presupposes that any reasonable examination is negative or that the findings are normal. But just what constitutes a normal or negative examination? Lederer, in his inimitable way, has said that a conclusion of negative findings may be a confession of inadequate examination or improper interpretation and suggests that physicians who are bored by a complaint of nasal stuffiness or a tickling in the throat had better get a rubber stamp, if not requiring too much physical effort. Certainly the examination should be adequately thorough and painstaking, but such are the possible tests, diagnostic procedures, and laboratory measures available today that it is not easy matter to decide just what comprises an adequate examination. Common sense must enter into the picture and thoroughness should not run such riot that a sheaf of laboratory reports yields only the comforting but inconclusive information that "everything is negative."

It is a rare patient, indeed, whatever his complaint, who does not exhibit some deviation from a hypothetically normal nose or throat. So varied are the structure and physiology of the nose and throat both in patients with symptoms and those who have no complaints whatsoever, that the estimate of what constitutes normality is not always easy. Numerical measurement so valuable in examination of the blood, the urine, blood pressure, blood chemistry, and many other physiological processes in the human body is only to a very limited degree applicable to the nose and throat. Who is to assess the normal capacity of a nasal passage, the normal viscosity of nasal mucus, or the normal amount of lymphoid tissue on the posterior pharyngeal wall of any given individual? One has only to take part in a survey of hundreds of essentially healthy individuals who volunteer for such examination, to see the greatest variations in rhinological and laryngological structure and function without a hint of abnormal local sensations. When one can examine a hard-working professor's nose and observe a practically total occlusion of one nostril by a septal deviation, only to receive an emphatic denial of any difficulty in breathing, it becomes somewhat puzzling to know where normality ends and abnormality begins. Patients with enormously hypertrophied and cryptic tonsils deny ever having had a sore throat and x-rays of the nasal sinuses may reveal thickening or even polyposis of the antral mucosa in patients who scarcely ever have a head cold.

Patients voicing any one of these homespun complaints frequently exhibit a wide variety of physical deviation from an acceptably normal base. The question then arises as to whether one or more of these deviations may lie at the bottom of his complaint and hence demand correction by medical or surgical therapy. This is no easy question to settle. Is or is not that scratchy sensation or feeling of a lump in the throat due to a hyperplasia or hyperemia of lymphoid follicles on the pharyngeal wall? Is a moderate hypertrophy of the inferior turbinate the real cause of a sensation of restricted breathing? Is diminished translucency of the maxillary sinus a wholly incidental finding or is it related to a postnasal discharge?

Not a day in the office passes but the physician is forced to wonder whether these intangible and largely subjective symptoms fit, like a cross-word puzzle, with these varied physical deviations which in themselves might either escape any but the most careful examination or, in the absence of any complaints, be regarded as completely fortuitous and insignificant.

These homespun symptoms may be said to constitute a kind of sand in the larvngologist's shoes, in that they face him with a somewhat annoying perplexity in dealing with them with the same sense of assurance and confident knowledge of their nature and of how to deal with them as is the case with more visibly organic lesions. However, unfortunately for the patient, the discovery of a malignant lesion on a vocal cord or of a bleeding mass in the nose gives the physician a sense of clinical security as to his knowledge of why the patient is hoarse or why he is bleeding. Let the story be merely that of a burning feeling in the tongue or of a tight sensation in the back of the nose and one is faced at once with a diagnostic dilemma, the unraveling of which may lead into a confusing labyrinth of diagnostic possibilities. Let a patient complain of having swallowed a fishbone which is visible on a mirror examination and all is well: if no bone is seen, numerous other possibilities for the patient's discomfort must be then given consideration.

Negative findings are never quite as satisfying as positive ones, and, however much they may reassure the patient, he still seeks an explanation for his complaint. Recoveries from vague, unclassifiable symptoms with or with out treatment, logical or otherwise, are grati-

fying to the patient but are of little help in evaluating the same symptoms in a subsequent case. The satisfaction of knowing what is wrong with a patient would seem to have reached its zenith when Oliver Wendell Holmes once said that a doctor derives more pleasure in a post-mortem examination which shows what is wrong with a patient than in a case which insists on getting well and leaving him in the dark as to the cause. This, I think, is a bit exaggerated, and I assume that Dr. Holmes was not referring to a fatality following any rhinological surgery from which the patient's recovery would be preferable to any tardy revelation as to what went wrong.

Homespun laryngology, moreover, does not lend itself to research or controlled investigation. The symptoms are too intangible and varied to permit correlation with different experimental set-ups. Observations of end results is thwarted by spontaneous and illogical recovery, preventing statistical reports and comparisons of such different therapeutic modalities as surgery and radiation. The difficulty of collecting a series of cases of scratchy throats sufficient to permit any dependable comparison of two or more methods of treatment is only too obvious.

As a rule these homespun maladies do not seriously incapacitate a patient, but he is vastly annoyed by them and worried as to the possibilities which their presence may indicate, an apprehension in which he may now and again be thoroughly justified. Only recently a colleague related to me the case of a patient who came to him because of a modest sense of discomfort in the side of the neck. A most comprehensive examination was carried out without revelation of the cause. The patient's persistent complaints led finally to a surgical exploration and discovery of a carcinoma of the thyroid gland. The first sign of leukemia may be a simple epistaxis. The local symptoms here being discussed may, when least expected, lead to the discovery of hormonal imbalance, metabolic disorders, dietary indiscretions, faulty habits of living, of sleep, exercise, and work. It is the ever present possibility in each individual, rare as it may be, of a serious condition that makes it imperative to give due credence to the patient's complaints and carry out adequate investigative measures before assuming the absence of any organic disease.

Today, with the extensive propaganda being broadcast concerning the early detection of cancer, many patients, while not expressing

overt apprehension, are secretly worried lest the sense of irritation in their throat may portend the early development of a malignant growth. They seek, quite apart from relief of their discomfort, what Sir Herbert Tilley so happily referred to as the "solace of an optimistic report." Even when, as in the great majority of cases, such reassurance can honestly be given, the patient still wishes to know the cause of his symptoms and to be afforded the means by which he may be rid of them. It is in this respect that these homespun complaints tax the acumen and judgment of the physician quite as much as if they were due to a more serious but readily observable lesion.

One of the major difficulties in establishing a diagnosis in this group of symptoms here under consideration is a multiplicity of etiological possibilities underlying a specific complaint. A simple cough may be associated with turbinal hypertrophy, an elongated uvula, a granular pharyngitis, a lingual tonsilitis, or an irritated larynx. Let us look for a moment at that protean bane of the rhinologist, postnasal discharge. Described by Proetz as "the great American nightmare" (whether for the patient or the physician he does not specify), this common complaint is ascribed to some fifteen widely diverse etological possibilities, each indicative of such differing therapy as to leave one quite bewildered as to which avenue of treatment to pursue. It is not hard to appreciate the diagnostic dilemma of the rhinologist who is confronted on a cold New England afternoon by a woman in the menopause, unhappily married, and inordinately fond of chocolates, who is seeking relief for a dropping in the back of the throat. Her examination may reveal a slight hypertrophy of the inferior turbinates, some enlargement of the lymphoid follicles on the posterior wall of the pharynx, or a moderate deviation of the septum. Is one to apply carbolic acid to the turbinal tips, are the lymphoid nodules to be painted with silver nitrate or is she to be afforded questionable help from a submucous resection? If, however, the local examination offers no possible therapeutic objective, is she to be told to put pans of water on the radiators, to take hormonal injections, to leave her husband, and for good measure move to Arizona, or just to give up candy? This hypothetical situation may seem unduly exaggerated but any one of these suggestions in a given case may yield such happy results that some consideration of all of them must enter into the solution of the problem. Atmospheric changes, exposure to external irritants, emotional tensions, endocrine

and metabolic disturbances, plus a wide variety of local nasal abnormalities—all may in a given case justifiably claim attention. The far simpler causal relationship between hoarseness and laryngeal tuberculosis makes for infinitely easier decision than in the case of postnasal discharge.

A physician's personal hobbies go far in determining what he regards as an adequate investigation into the causes of a particular symptom. Thus to an allergically minded rhinologist postnasal discharge might warrant the subjection of the patient to a battery of skin tests and a seance with a questionnaire of some 300 queries. The enthusiast for dietary modifications as the sovereign remedy for this widespread complaint proceeds on a totally different line of attack, often quite as successfully as the allergist. The endocrinologist feels sure that corticosteroids will solve the problem. The cost to the patient in time and money of such excursions into allied medical fields is not hard to visualized, but each physician can cite cases to justify his personal enthusiasm for a given line of approach. In addition it must never be forgotten that the origin of a patient's complaints may lie in some area remote from its apparent location and so bring into question a general physical examination of his blood, urine, chest, heart, or gastro-intestinal tract, or other areas not visualized with a head mirror.

The problem of multiple etiology, within limits, holds good for many of these homespun complaints, the investigation of which, in modern medical practice and with the availability of numerous and seemingly unrelated procedures may lead one far afield. It is no easy matter to steer a reasonable course between thoroughness and overly exhaustive coverage of every possible diagnostic measure.

Such patients often present themselves at the end of a busy day when the physician is hard put to it to give the time and attention to what may seem like a tedious and indeed loquacious recitation of complaints which he cannot but feel are somewhat inconsequential and yet to which he must give sympathy and patience if he is to get at the root of the matter. He may well wonder after reading perhaps of the terrifying experiences of survivors on the Andrea Doria, how patients can place so much emphasis on such seemingly minor discomforts, but philosophers long ago maintained that sym-

pathy for the misfortunes of others does in the least mitigate the poignancy of our own. These patients with rare exceptions are genuinely troubled by their ailments, do not complain simply to irritate the doctor and expect some return for their time and money beyond the pleasure of being coddled and fussed over. It takes time to hear these stories, more time than can usually be given by a man who sees 30 or 40 patients in a day. Often the physician earns his money by the dose of loquacity he takes himself quite as honestly as the pharmaceutical one which he prescribes.

If, by whatever measures he deems advisable for purposes of adequate examination, both locally and systemically, the physician can satisfy himself that there is no demonstrable organic cause for the patient's complaint, he may then justifiably conclude that the case falls into the ever-increasing and more frequently recognized category of psychosomatic. Since the earliest days of medicine it has been known that pathological states may often be the reflection of some emotional or nervous tension quite as definite as of actual organic disease. Symptoms of gastric ulcer, of sinusitis, even of a brain tumor may stem from some social, economic or moral conflict of which the patient himself may be only vaguely aware, but which may closely simulate organic disease. Functional disorders, with which the symptoms here under consideration are frequently associated, are today occupying an ever-increasing portion of otolaryngological practice. Modern life is, as never before in history, being lived for countless individuals under the strain of world unrest, the threat of war, economic confusion, and a hypertensiveness of daily activities that subjects even the most well adjusted person to a degree of tension. consciously or unconsciously, which may express itself in local symptomatology in so sympathetic an area as the nose or throat. Davison has estimated that 36 per cent of a large group of office patients manifested only functional disorders while 22 per cent more had a combined functional and organic origin, a total of 58 per cent of all patients presenting some functional elements in their complaint. It thus devolves on the laryngologist to take a far wider view of his patient than what can be seen in the nose or throat. This is not to say that he must, in addition to his special field, assume the role of the psychiatrist, for which he has neither the time nor the training. If, however, he is willing to give attention and consideration to the patient as an individual, to assess his general appearance, personality

and manner of presenting his complaint, he will be surprised with what ease he can frequently come to a quite dependable and justifiable conclusion that his patient's trouble stems from some underlying emotional tension of which the symptoms are unlikely to be attributable to anything seen on local examination. Because these seem to lack classification as a clinical entity is no proof that the patient is a neurotic on whom no further time need to be expended. Patients are universally resentful of a physicians' attitude which suggests that they are hypersensitive, that they are complaining unjustifiably or that they merely imagine the existence of their trouble.

#### TREATMENT

If the establishment of a specific cause of these assorted symptoms is difficult, the decision as to how they are to be treated is no less so. The removal of a questionably infected tonsil, the correction of a moderate septal deviation, the excision of a slight turbinal hypertrophy may occasionally achieve gratifying results but more often will prove unavailing in eliminating the patient's complaint. Most patients do not relish surgical procedures unless given convincing assurance of a direct causal relationship between their symptoms and the objective of the surgery and it is far from satisfying to the surgeon to observe a pleasing operative result in a patient who still presents his original complaint.

Throughout all otolaryngological literature there runs periodically the outcry against unnecessary surgery, as witness in 1926 Shambaugh's criticism of indiscriminate tonsillectomy as the "most flagrant abuse in the practice of medicine." His contention that "most patients with headaches do not have sinusitis and most patients with sinusitis do not have headaches" is, I think, as true today as 25 years ago. It is particularly in conjunction with the type of complaint here under consideration that operative procedures should be withheld unless a successful result is virtually assured.

The advisability of less drastic therapeutic measures may present equally perplexing decisions. Local applications, sprays, cauterizations and packs offer tempting opportunities to do something tangible for the patient, and when least expected may afford prompt and

gratifying relief, but inevitably leave the physician with a feeling that good luck rather than logical management has turned the trick. There is always the risk that such treatments, particularly if repetitious, will lead to some degree of fixation of the patient's complaint who thereat assumes that he must have some visible disorder for which he would not otherwise be given treatment. At the other end of the scale lies therapeutic nihilism, with the withholding of any treatment which cannot be logically justified, leaving the patient to utter that classic complaint, "he didn't do anything for me." These are not easy decisions to make for a conscientious doctor who is still eager to help his patient.

One of the currently popular television and radio advertisements extolls the merits of a certain drug because it is, to quote, "like a doctor's prescription." Many a patient, however reassured by his physician of an absence of any serious findings, will be disappointed if not given a prescription. It is a common observation at the American Academy Instructional Courses that the instructor who is equipped with prescriptional novelties will have every seat in the room taken. If at the conclusion of his examination the laryngologist is uncertain as to the exact nature of the patient's ailment, he will be tempted to hope that a trial of some prescription will at least satisfy the patient or perhaps even cure him. Never before has there been such a multiplicity of therapeutic possibilities for every known ailment or symptom as is today flooding the market. The morning's mail brings an armful of gaily colored and sample-bearing panaceas allegedly appropriate for numerous disorders or complaints. Toward these it is impossible to maintain a scientifically critical attitude based on controlled experimentation. Such hit-or-miss therapy will seldom leave the physician with any very satisfied feeling of professional achievement, regardless of the patient's frequent report that the medicine has done him a world of good.

Moreover, the results with any given drug or procedure will always vary because inevitably applied under slightly different conditions and to different individuals and what is proclaimed by one physician as a sovereign remedy or mode of procedure may often disappoint an equally competent colleague.

The rise in frequency of emotionally based complaints goes hand in hand with an increase in the number of so-called tranquilizing

drugs for which over 35,000,000 prescriptions were written in 1956, among them an unknown number for one drug advertised as efficacious in 17 different conditions ranging from mental deficiency to arthritis. It has been estimated that in ten years the pharmaceutical industry will be one of the top ten in the country. For the moment, drug houses seem overly concerned with Relaxors, Tensors, Neutralizers, and Antagonizers, creating an impression that today there is available a drug for every mood, every stress, and every strain to which mankind may be subjected.

The question arises as to how far the laryngologist should attempt the role of psychiatrist. Certainly he is not to be expected to undertake a lengthy and specialized psychiatric investigation, but if he is willing and sufficiently interested to give the time, patiently and sympathetically, to talk to the patient he will be surprised to find how often even a superficial inquiry into a possible emotional cause of the symptoms will bring to light something of which the patient is quite ready, even eager, to talk if given only a helpful suggestion and encouragement. At the outset patients with laryngological complaints are quite unprepared to find a laryngologist interested in their personal problems and are equally unaware that there may be any connection between these and their local symptoms. Once the laryngologist has overcome a natural reluctance to investigate the less familiar emotional background, he will discover how readily a comfortable relationship can be established and how frankly the patient will reveal a possible underlying explanation for his symptoms. A woman who leaves the office in tears has often been more effectively helped toward riddance of a stuffy nose than one whose turbinate has been cauterized or who has been given an antihistamine or a tranquilizer.

It is with some reluctance that I bring to the attention of so distinguished a group of laryngologists a subject unrelated to experimental research, novelties of technique or statistical surveys. My interest in this subject is the outcome of prolonged soul searching as to how these daily problems should best be handled from the patient's standpoint. Quite possibly I shall have benefited more than my audience from what is to some extent a personal confessional. In this homespun segment of our work, however lacking in glamor, there is always opportunity for the industrious, a challenge to solve prob-

lems, and the gratification of achieving good results of which a patient will often be quite as appreciative as of those attained by more spectacular procedures.

The sand in our traveler's shoes may have been annoying but, through toughening his feet, it may have facilitated his conquering the more formidable hazards of his journey. The daily training in dealing with the homespun complaints I have considered may well prove of unsuspected value in improving our handling of the more dramatic and colorful problems in laryngology.

#### 77 Massachusetts Ave.

#### DISCUSSION

Dr. Frederick T. Hill: While awaiting to hear from Dr. Richards, I decided I had best refresh my memory regarding the title and consulted Webster. According to this authority, "homespun" refers to something "spun or woven at home; coarse; plain." Consequently I might question the title a bit, for his paper certainly is not coarse and is plain only if we mean plain common sense.

It was a real pleasure to read Dr. Richards' paper, for it had all the honesty, the soul-searching, the down-to-earth philosophy so characteristic of his writings.

My own experience is quite in accord with Dr. Richards' and I find plenty of "sand in my own shoes." The patient with these various bizarre complaints, a paucity of objective findings, with always the question of the significance of some anatomical variation from a theoretical norm, poses a problem, and one which, by contrast, makes the discovery of a significant lesion many times a source of relief, if not of joy. One might paraphrase a bit and say, "These are the cases which try doctors' souls."

And yet they must not be casually brushed off. Even hypochondrism does not provide immortality. Neglect of thorought study because of a patient's reputation for hypochondrism, at times, has been responsible for death from metastatic carcinoma. Too often the bizarre complaints which appear functional may be manifestations of some vasomotor disturbance so concealed as to require most careful search to bring it to light. One of our pediatrists recently has had three young patients with a complexity of vague vasomotor symptoms, particularly of the skin and all proven to have gastric ulcers. On the other hand, we may see a patient with Meniere's symptom complex apparently under control, who reports with an exacerbation, which careful study indicates some marital trouble as the cause, shortly relieved simply by a few days away from home, in the hospital. It is often difficult to determine which is the prime offender, psyche or soma.

Actually, I can quibble with the author on only two minor points and, knowing him, I doubt we are at odds on them. When he speaks of seeing 30 to 40 patients in a day I feel that he must be thinking of more than office consultations for that suggests a production line, which makes difficult accurate study and diagnosis unless

one be a superman. I have to spend often a full hour or more to do justice to a patient seen for initial study, and I know Dr. Richards too well to think that he carries on this production line practice.

The other point, and it is an intriguing one, is whether we, as otolaryngologists, are afflicted (and I use the term advisedly) with this type of patient more than our confreres in other specialties. It happens, perhaps from my location, that three-fourths at least of the patients I see are referred from other physicians, specialists, as well as general practitioners. From those who are considerate enough to send any information with the patient, I feel assured that they too have "sand in their shoes."

To satisfy myself further on this point, I undertook to poll certain of the members of our staff at the Thayer Hospital. Our allergist put the number falling into that category as low, which might be expected, as most allergic patients have enough functional overlay to make it seem normal. Pediatrists reported very low. Orthopedics suggested ten per cent; obstetrics and gynecology, ten to fifteen per cent; general surgery, 25 per cent, while internal medicine, including cardiology, reported the high of 42 per cent. The well-known routine of disrobing, in our case at least, seemed to be no deterrent to visiting the internist. I am inclined to believe that there is an indication that we have been developing a growing segment of our population who, to say the least, exhibit a very labile vasomotor status, probably due to the stress and strain, the hypertensiveness of daily activities, referred to by the author.

The diagnostic dilemma, so well described by Dr. Richards, is not easily solved. The application of a wide spectrum of laboratory tests, or trial and error therapeusis, does not seem to be the answer. This suggests the "peripheral medicine" so aptly described and condemned by Bloomfield of Leland Stanford.

Recently I saw in consultation a patient who presented a classical picture of that condition described variously as Laryngeal Vertigo, Laryngeal Epilepsy, Laryngeal Ictus, or better Laryngeal Spasm. And this patient with a normal appearing larynx had been subjected to a direct laryngoscopy with biopsy, a bronchoscopy and an esophagoscopy.

Dr. Richards' paper emphasizes the supreme importance of a carefully taken history, as well as a thorough examination. A good history cannot be hurried. We must learn to listen and to question, but especially to listen. And perhaps if listening becomes a hairshirt added to "the sand in our shoes" it will serve to improve our diagnostic acumen.

Before jumping at hasty conclusions, or indulging in trial and error therapeusis, whether medical or surgical, it would be well to remember that our colleagues in allied fields may be of assistance. One cannot obtain a complete knowledge of the interior of a house by looking in one window. Consultations with the Internist, Gynecologist, Endocrinologist, and the Psychiatrist, may prove helpful. There may be a reason for "sand in the shoes," whether organic or functional. Solution takes patience and adds to our gray hairs but we'll sleep better perhaps by transferring some of that sand to our conferees.

Again I must compliment Dr. Richards on a most excellent and worthwhile presentation.

Dr. LYMAN RICHARDS (closing): I want to thank my fellow New Englander for his kind remarks. When I sent him my paper I begged him to deal gently with it. Whether he has I will leave to you.

With reference to the 30 or 40 patients a day, I can only say that in my reasonably extensive tours around the country and talks with my distinguished colleagues, many of whom are present today, I get reports of numbers that appall me. I am sure they have an efficient system for dealing with them but frankly they are like certain golfers and are out of my class. I have no doubt that there is "sand in the shoes" of other branches of medicine. Probably backache is an awful headache for the orthopedic surgeon. Again you get complaints from a host of people who have nothing the matter with them. What bothers me is always the fear that I am overlooking something—something which really has significance. The case I mentioned with reference to carcinoma of the thyroid seemed as innocuous at the outset as anything could be. It is perfectly true that a huge percentage of these patients have nothing organically wrong with them but it is hard, I think, to distinguish between the sheep and the goats, so to speak. It is uncertainty that is dissatisfying. That is why I tried to stress the fact that when you see something, as a tack in the bronchus, it is always a tangible, satisfying experience.

If there is anything I have wished, outside of the fact when dealing with a difficult foreign body that either Dr. Jackson, Senior or Junior, were standing over my shoulder, it has been that some one of a dozen of you were standing by my side and I could turn to you and say, "What would you do with this?" I would probably get about as many suggestions as the number of people queried. That in a sense is what bothers me about these problems—the multiplicity of possibilities. As I said, a man who is interested in biology or the microscopic and the bacteriological aspects of a case would pursue it by suggesting vaccines. Another man, a dietary enthusiast, is going to take starch away from the patient, and the man who has developed some success with touching carbolic acid to the posterior turbinates for post-nasal drip thinks there is nothing to post-nasal discharge. How to approach a problem which seems to have so many angles and so many avenues of approach is really the burden of my song.

Again to get back, as I did at the beginning, to Dr. Campbell, if I ever get into any activity in outer space, which is highly improbable, I just hope people up in that orbit don't have post-nasal drip.

# FUNDAMENTAL PHYSIOLOGICAL FACTORS TO BE CONSIDERED IN SPEECH THERAPY

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AND

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The production of human speech requires the functional integration and synchronization of several physiological systems. Although there is an area of agreement in regard to the physiology of speech, many facets of this activity are unknown.

The basic requirements for voice production include the breathing mechanism, the larynx, and resonators. In the consideration of speech production it is necessary to add a fourth physiological system, the articulators.

Included in the articulators are the tongue, pharynx, palate, lips, and the teeth which are also integral components of the speech resonating system. Each of these speech physiological systems and structures functions primarily and initially to sustain life. For example, the sphincter action of the larynx protects the lower respiratory tract, and by partially controlling intrathoracic and intra-abdominal pressure the larynx exerts some control over blood circulation, blood pressure and the interchange of gases in the lung. In the production of speech it is necessary to modify these primary functions in order to produce acoustic signals, which in a sense interferes with the original purpose of these systems. For this reason speech is referred to as a secondary function, primarily controlled by the central nervous system.

From the Bill Wilkerson Hearing and Speech Center, and the Department of Otolaryngology, Vanderbilt University School of Medicine.

The physiological activity of all of the component parts utilized to produce speech may be influenced by:

- 1. Mental retardation.
- 2. Organic brain damage, cortical or subcortical. This is a rare condition which frequently has been incorrectly diagnosed.
  - 3. Abnormality of anatomical structures.
- 4. Lesions of the V, VII, VIII, IX, X, and XII cranial, the intercostal, spinal and phrenic nerves and the sympathetic plexus.
- 5. Lesions in different areas of the central nervous system producing various muscular abnormalities such as loss of co-ordination, involuntary movements, spasms, and weakness.
- 6. Increased or decreased activity of the salivary glands and the glands of the upper respiratory tract.
  - 7. Diseases such as myasthenia gravis and Friedreich's disease.

Oral communication in its simplest form is cyclic in nature involving the mechanics of speech and hearing. If the hearing of the speaker is impaired his speech monitoring system is disturbed. An "acoustic memory" is also a prerequisite for normal speech. The role of hearing in speech production is of major importance and must be included in any consideration of speech behavior.

In the field of speech pathology and speech therapy, voice and articulation disorders, although related, are routinely considered separately, and as different problems. There are observable differences in that each has its individual characteristics requiring special considerations.

The fact that the same physiological system can be used to produce acoustic signals perceived as speech which differ enough to prompt their description in different terms indicates clearly the high order of physiological integration which exists for speech. It also strongly suggests that the same fundamental principles can apply to both voice and articulation disorders.

There are two aspects of physiological function: first, limitating factors (normal and abnormal functioning) and second, compensatory functions.

### FUNDAMENTAL PHYSIOLOGICAL PRINCIPLES INVOLVED IN CONSIDERATION OF SPEECH THERAPY

In a speech disorder, the physiological systems have not been integrated functionally to produce acceptable speech. Any voice or articulation speech disorder can be fitted into this frame of reference.

All cases with abnormal speech deserve an otolaryngological examination, and perhaps other medical and dental examinations prior to speech therapy. Dentistry has an important role in the speech field.

Pitch in the human voice is directly related to the rate of the vocal fold vibration while quality is related to the manner in which the vocal folds vibrate. However, quality is even more closely related to the influence of the resonating cavities. Even so it has been demonstrated that voice quality can be changed by merely elevating the pitch.

Application of this principle is illustrated by the following case report:

#### REPORT OF CASES

A 48 year old male complained of tightness, distressing fatigue, and pain in the throat after talking for only a short time. The quality of the voice was obviously deviated from the normal. The tones appeared to rattle as if something loose on the cords was interfering with their movement. The pitch did not sound abnormally low. A laryngeal examination was negative. In the speech analysis the pitch range was calculated to be approximately 13 musical notes, which was abnormally restricted. Further, it was found that the patient habitually spoke quite near the lower end of his pitch range.

Voice training was employed to increase the pitch range and especially to raise the habitual pitch level. Eventually the patient developed a pleasing and normally effortless voice pattern.

The significant point which is illustrated by this case study is the fact that elevation of the fundamental pitch resulted in altering the quality of the voice.

Laase<sup>1</sup> in 1937 demonstrated that, under controlled conditions, the quality of the human voice is altered perceptibly by simply elevating the fundamental pitch. This indicates a physiological relationship between the vocal fold activity which is responsible for the fundamental pitch and the resonators which are the primary determinants of voice quality.

The following case report indicates the necessity of a laryngeal examination in all cases with a speech abnormality.

A young adult male manifested a voice disorder which was diagnosed medically and by the speech pathologist as severe harshness. Vocal nodes were present bilaterally, otherwise the laryngeal examination was negative. The nodes were removed, but the harsh quality persisted except in one pitch, despite voice therapy. Direct laryngoscopy showed the presence of some scar tissue on the cords which may have interfered with their normal synchronous vibration. The harsh quality still remains after a period of over three years following surgery and voice therapy.

In order to understand this problem one must analyze the fundamental function which is responsible for the deviated voice quality. It is a well established fact that in a normal voice the manner of vibration of the two vocal cords is synchronous and in a complex wavelike motion. The tone thus produced is periodic and complex with a predominant musical or clear quality. This, of course, is due to the inherent characteristics of the vocal folds. The cords are elastic and can be stretched, which changes both the length and stiffness. When this occurs the pitch is elevated but the quality of the tone is not distorted which implies that the synchronous vibration pattern has not been altered. There are numerous causes of harsh quality but in regard to the disorder of the case just reviewed it seemed possible that the amount of scar tissue remaining on the vocal folds was sufficient to preclude a normal pattern of fold vibration. Although the human organism can compensate for some deviations of structure and function, there is a limit which cannot be exceeded. This limit lies within the anatomical and functional characteristics of the structures involved. Knowledge of these factors makes it possible for the voice therapist to approach individual voice problems realistically.

A significant case, B.B., age 16, white female, whose family and previous history were negative, had acute spinobulbar poliomyelitis in January 1954. Three days after the acute onset she developed facial paralysis, inability to protrude her tongue and to swallow. A tracheotomy was required, followed by almost constant suction. Two days later, paralysis of the abdominal, respiratory muscles and of all of the extremities was noted. She was placed in an Emerson respirator and five days later the acute symptoms began to subside. At this time the patient was speechless.

When first seen, two and a half years later, the findings of her physical examination were not remarkable except for neuromuscular changes.

The patient had bilateral paresis or paralysis of the V, VII, X, XI, and XII cranial, and the intercostal, spinal and perhaps the phrenic nerves.

At the present time the paralysis of the V cranial nerves involves the masseters, temporals, pterygoids, myelohyoids and anterior half of the digastric muscles. Contracture of these muscles with some fibrosis of the joints' capsules had resulted in the inability of the patient to open her mouth more than one-half inch. The paralysis was responsible for the patient's inability to close her mouth.

Physical therapy has made it possible to open her mouth so that a prothesis can be applied which enables her to approximate her mandible without the use of a Thomas collar.

The platysma, the buccinators, the posterior half of the digastrics, the stylohyoids, the epicrani, and the other superficial muscles of the face show evidence of involvement of the VII cranial nerves. That involvement is minor and produces little speech difficulty. There is a loss of function of the levator palati, constrictors of the pharynx, and the intrinsic muscles of the larynx due to involvement of the X

and XI cranial nerves. Almost complete paralysis of the XII cranial nerves has produced paralysis and atrophy of the intrinsic muscles of the tongue. The tongue tends to drop back into the pharynx and the patient is incapable of protruding it.

Therefore the patient's speech difficulty arises from:

- 1. Paralysis of the muscles of mastication which prevent her from moving her mandible.
- 2. Contracture of the same muscles which have left the mandible in a closed, fixed position with a marked underbite.
  - 3. Paralysis or paresis of the muscles of the pharynx and larynx.
- 4. Marked paralysis and atrophy of the intrinsic muscles of the tongue.

Gradually speech returned until at the present time it is intelligible and in connected form. Most patients who survive poliomyelitis do not manifest significant articulation disorders. Examination reveals that the patient is not articulating the speech sounds in a normal manner, as it is impossible for her to use the usual speech structures.

The results of the analysis of the articulatory movements of this patient show that she has been able to relearn almost acceptable articulatory patterns by means of, what should be termed, very ingenious compensatory movements. These compensatory movements consist principally of utilizing a combination of lower lip and upper teeth contacts for the production of consonants which are normally articulated by the tongue in contact with the internal oral structures and the teeth. The glottis is substituted for the tongue to produce plosive sounds "k" and "g." She has learned all these compensatory movements without instruction.

The "k" sound in the word "cat" is a stop-plosive consonant normally produced by elevating the back of the tongue to contact the velum during which time air pressure is increased. The tongue is then dropped suddenly and the plosive phase of the sound is completed. This sound is voiceless and therefore the vocal cords do not vibrate at any time. In the compensatory "k" sound the glottis is closed with an increase in subglottal air pressure. At the plosive stage the glottis is opened suddenly and the resultant sound cannot be differentiated from the normal "k" sound.

This in itself is not unique as it occurs not infrequently in speech disorders. Similarly, the compensatory "g" sound is produced with the glottis. Normally, the only differentiating characteristic between "g" and "k" is that the "g" is voiced (vocal folds vibrate) and "k" is voiceless (vocal folds not vibrating). It is significant that compensatory speech movements could be so discretely adjusted as to result in such minute differences confined to the same anatomical structures.

This case study clearly illustrates the ability of anatomical structures to assume unfamiliar functional activities, in a logical and optimal manner. For example, the glottis is easily adapted to produce glottal clicks as required for explosive bursts of air. The other structures involved could be analyzed in a similar manner.

The results of this case study also imply a more flexible approach to speech therapy. Usually the speech therapist attempts to retrain or train the speech structures to function as they should normally. However, there are many disorders, such as cleft palate and cerebral palsy, wherein the damage to the speech mechanism structure is so extensive that normal functioning is impossible. With such cases compensatory speech could possibly result in a more acceptable speech pattern if judged only on the basis of the acoustic impression.

#### SUMMARY

Fundamental integrated factors should be considered in any speech therapy approach as they determine the extent of the changes in speech through therapy. The examples cited suggest three fundamental principles which should be used as basic speech therapy rationale:

1. It is important to understand the nature of individual mental physiological activities and their integrated interrelationships.

- 2. Direct damage to speech producing structures may be extensive enough to preclude training or retraining of these areas in order to produce acceptable speech.
- 3. It has been shown that compensatory movements can be developed. Therefore one should explore the possibilities for introducing compensatory activity for speech rehabilitation whenever there exists extensive organic damage of the speech structures.

In the case of the patient with poliomyelitis, vocal fold activity was successfully substituted for movements which are normally the responsibility of the tongue.

#### 700 CHURCH STREET

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1. Laase, L. T.: The Effect of Pitch and Intensity on the Quality of the Vowels of Speech. Arch. Sp. 2:41-60, 1937.

#### THE MECHANISM OF PHONATION

SIR VICTOR NEGUS

With the Collaboration of
PROFFESSOR E. NEIL and DR. W. F. FLOYD
LONDON, ENGLAND

For many years I have taken great interest in the study of the anatomy and physiology of the larynx; I have found it essential to examine all the functions of the organ and the conclusion, based mainly on the evidence of comparative anatomy, has been that in mammals and man an organ evolved and developed for other purposes has been adopted for producing cries, speech and song.

The larynx is not utilized for this purpose by all species, as for instance birds, who have evolved a specialized vocal organ, the syrinx; no doubt mammals could have done the same if the necessity had arisen.

One commences, therefore, with the assumption that the physiological principles entailed in such processes as protection of the respiratory tract or fixation of the thorax during fore limb efforts, are similarly used for the production of sound. It would be surprising and to me impossible to believe that entirely new physiological principles had been introduced for phonation in an organ not primarily designed for that purpose.

Furthermore I am a firm believer in the lessons of comparative anatomy; I do not accept any suggestion that the human body has evolved mechanisms differing basically from those of other mammals.

Examination of minute structure shows a remarkable similarity between the individual components of the animal and human body;

From the Department of Physiology, Middlesex Hospital Medical School, London.

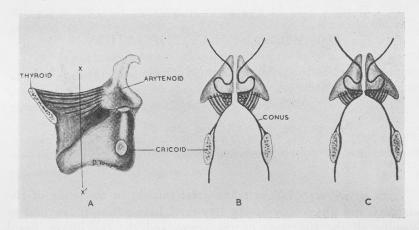


Fig. 1.—Diagram to represent registers. In B is seen a coronal section of the larynx of a man during the production of low pitches; deep areas of the inferior thyro-arytenoid folds come into contact. In C is represented the mechanism for high pitches; contraction of those fibres of the thyro-arytenoid muscle arising from the conus elasticus has reduced the areas meeting on phonation. On the left (A) the shorter course of the fibres arising from the conus is shown in relation to those coming from the thyroid cartilage.

to take one example, cilia have been shown to correspond in structure, whether taken from a mollusc, an amphibian or a mammal.

Having read many communications on the subject of phonation and having examined the larynx of most vertebrates, including man, both anatomically and experimentally, an understanding of the mechanism had been attained which seemed to offer a clear and logical explanation.

But having arrived at this degree of comprehension, philosophical doubt has now been cast by the introduction of a new clonic theory of phonation as an alternative to that previously held. It is obviously desirable to examine this theory and not to ignore it because of its divergence from previously recognized opinion.

The reason for the introduction of these new and original views depends on the difficulty experienced by their authors in explaining certain details of phonation on orthodox lines; three or four supposed

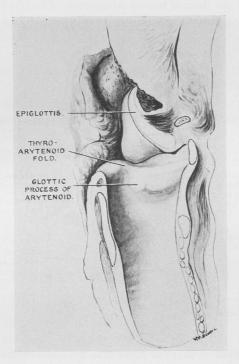


Fig. 2A.—Sagittal section of the larynx of a spotted hyaena, Hyaena crocuta, to illustrate the absence of a separate inferior thyro-arytenoid fold. With a similar simple type of larynx many members of the cat tribe execute a wide range of sounds.

discrepancies have led to the discarding of the old and the introduction of a new explanation.

I do not propose to deal with these details, which to me do not offer valid objections to the views previously held. Rather is it desirable to examine the basic principles underlying the alternative theories; if one or other is proved correct or if either is found to be untenable then it will be time to pay attention to the details in dispute.

#### BASIC PRINCIPLES OF PHONATION IN MAMMALS

The sound producing system consists of three parts, bellows, reed and resonator; there is no dispute as to these elementary details. The

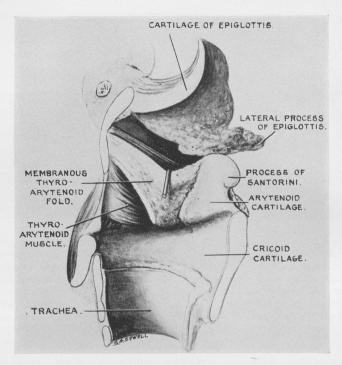


Fig. 2B.—Dissection of the larynx of a spotted hyena. The lax connective tissue covering the thyro-arytenoid muscle is shown, unlike the vocal fold and conus elasticus of man. The thyro-arytenoid muscle is flat and its fibres arise from the thyroid cartilage, to be inserted into the arytenoid; there is no origin from the conus and no possibility of separation of the margins of the glottis by muscular traction except by the action of the posterior crico-arytenoid muscle.

bellows are provided by the lungs; with a stream of air under varying degrees of pressure audible laryngeal sounds cannot be produced. Again, there seems to be no dispute regarding the dependence of loudness or intensity on the pressure of the air stream escaping through the larynx.

There are, naturally, differences in the pressure required to actuate various types of larynx; for instance, the small Hoolock gibbon can produce piercing cries of amazing loudness by virtue of the nature of the vibrating folds at the glottis.

There is, I believe, no disagreement in regarding the larynx as the source of sound in mammals; mixed sounds are produced at the glottis under the agency of the actuating tracheal air current.

The third component comprises the resonators of the thorax, the pharynx, the mouth and nasal passages; by their agency the quality of sound is mainly controlled, together with amplification of the mixed laryngeal tones; by themselves the latter are feeble and of poor quality, as noticed when a subject of laryngectomy attempts to phonate after his larynx has been separated from the pharynx, while still attached to the trachea.

If I am right in assuming that both tonic and clonic theories ascribe control of loudness to the lungs and determination of quality to the resonators, then the argument resolves itself into differences of opinion regarding sound production at the glottis.

#### TONIC AND CLONIC THEORIES

The usual explanation of phonation ascribes the production of laryngeal sounds to rhythmical opening and closure of the glottis under the influence of intratracheal pressure. The mechanism does not resemble any known musical reed, because it depends on varying elasticity of the glottic margins, as determined by the degree of contraction of the muscles bounding the glottis. These are the thyroarytenoids, which contract slightly or powerfully to support the overlying connective tissue or vocal folds, which come into apposition with one another, with temporary closure of the glottis; the pressure of air in the trachea then blows the closed folds apart and the consequent reduction of pressure allows their elasticity to close them once again, the process repeating itself rhythmically.

Here the active agent is intratracheal pressure, which causes a series of puffs to escape through the tonically closed glottis. Experiments with strips of muscle or with an excised larynx readily demonstrate this mechanism.

The clonic theory, on the other hand, is based on rhythmical contraction and relaxation of the muscles bounding the glottis, that is the thyro-arytenoids, under the stimulus of a succession of nervous

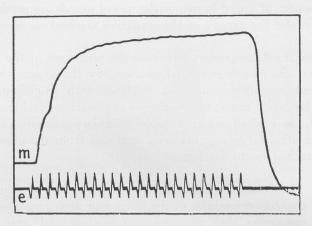


Fig. 3.—Mechanical (upper record) and electrical (lower record) responses of muscle to stimulation of its motor nerve at a rate of 67 shocks per second. Note fusion of mechanical contraction although discrete e.m.g. potentials are still seen. (Sherrington et al. Reflex Activity 1932) (Reproduced from Applied Physiology. Samson Wright. H. Milford. Oxford University Press.)

impulses derived from the central nervous system; here the active agents are the margins of the glottis, with release of intratracheal air in a series of puffs.

#### ROLE OF OPPOSING MUSCLES

In both tonic and clonic theories it is understood that the muscles bounding the vocal folds, the thyro-arytenoids, are afforded fixed points of origin from the thyroid cartilage, with insertion into the arytenoids. Consequently, it is essential that the thyroid and cricoid cartilages should be held in correct relative position by the cricothyroid muscles, that the arytenoid cartilages should be braced back against the pull of the thyro-arytenoids by contraction of the crico-arytenoideus posticus, and that the arytenoids should be held in firm apposition by the interarytenoid, the lateral crico-arytenoid and partly by the external division of the thyro-arytenoid muscle.

If this assumption is accepted the argument confines itself to a study of the thyro-arytenoid to decide whether its components are in tonic or in clonic contraction.

### ACTION OF OBLIQUE FIBRES OF THE THYRO-ARYTENOID MUSCLE

The exponents of the clonic theory have introduced a further complication. Instead of supposing that the thyro-arytenoid alternately contracts and relaxes, thus releasing puffs of air, they have suggested that oblique fibres of the thyro-arytenoid muscle, or transverse fibres according to their writings, pull the glottic margins apart rhythmically.

Dissections of the human larynx show that there are oblique fibres of the external division of the thyro-arytenoid, arising from the outer surface of the conus elasticus, to be inserted into the body of the arytenoid. The origin is, however, low down and not from the upper part of the conus which constitutes the fibrous covering of the vocal fold; contraction would not open the glottis but would only pull the subglottic membrane outwards (Fig. 1).

The presence of oblique fibres is well recognized; the action usually ascribed to them is the production of what are known as thick and thin registers. On low tones, when elasticity of the glottic margins is at a minimum, with contraction of only a few muscle fibres, the conus is not pulled outwards and a broad surface of the inferior thyro-arytenoid or vocal fold comes into contact with its fellow.

Moving pictures with a very high speed camera show the somewhat flabby, wide faced folds being blown apart from below upward, rolling outwards as the puff of air escapes.

On high tones, when many or all the fibres of the thyro-arytenoid are in contraction, those directed obliquely pull the conus outwards and thus reduce the areas of the vocal folds in contact; this is called the thin register, clearly demonstrated by tomograms.

Most mammals, including monkeys, have no such oblique muscle fibres (Figs. 2A, B); on comparative and human evidence, I consider the introduction of this complication to be unnecessary, inaccurate and unfortunate.

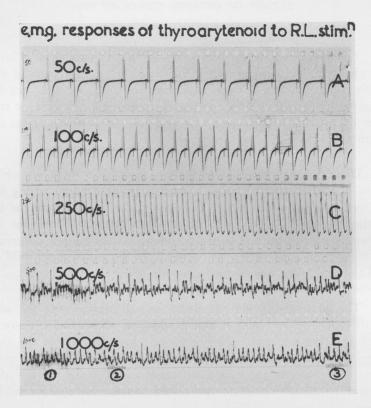


Fig. 4.—E.m.g. records from thyro-arytenoideus during stimulation of the recurrent laryngeal nerve at 50, 100, 250, 500 and 1,000 c/s. In D and E the stimulus artefact has been touched up to show more clearly. In E this has been done at three points (1), (2) and (3). Note that in E the e.m.g. potentials occur at a much slower rate than that of the stimulus artefact.

#### CENTRAL NERVOUS CONTROL OF PHONATION

Considerable emphasis is placed by the clonic theorists on the centers and tracts in the cerebrum, the midbrain and the hind brain; it would appear, however, that observations in this direction have no direct bearing on the problem.

The neuromuscular mechanism of phonation is remarkably complicated, since there are not only the many muscles of the larynx to

be controlled, but in addition those of the pulmonary system and also those of the various resonators; there are at least one hundred single or paired muscles.

When it is remembered that air must be expelled from the lungs at an even pressure of varying level, it is obvious that delicate control of the intercostals and diaphragm, among others, is required.

As to the resonators, the shape and size of the pharynx and mouth must be adjusted; the soft palate, the tongue, lips and cheeks all need control, with frequent changes when vowels or consonants are pronounced.

To the larynx are attached a number of muscles, the sternohyoid, thyrohyoid and sternothyroid, the palatolaryngeus and inferior constrictor; there are also the intrinsic muscles, two paired and one single.

If one considers an operatic singer it is amazing to observe the ability to produce tones in competition with a large orchestra, to alter pitch and at the same time to articulate, all with theatrical emphasis. The cerebrum has an immense task in sending out signals to the subsidiary centres, which in turn co-ordinate and relay stimuli to the many muscles. To attain purity of quality the degree of contraction of the right and left thyro-arytenoid muscles must be identical so as to afford equal elasticity and equal rapidity of recoil to the two vocal folds.

The neuromuscular mechanism of the tonic theory is thus found to be extremely complicated, and at first sight almost overpowering.

The clonic theory envisages similar control of the whole system, with tonic contraction of all the muscles except the thyro-arytenoids, which are supposed to contract rhythmically and, as in the tonic mechanism, with identical force on the two sides.

The burden on the central nervous system according to the tonic method is sufficiently onerous, but the addition of clonic contraction of two small muscles would appear to be more than could be expected.

The main point of this section of the discussion is not merely to refer to the complexity of the nervous control, but to show that

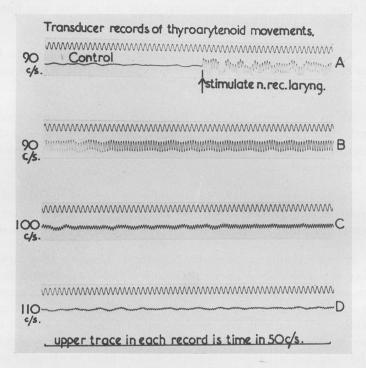


Fig. 5.—Transducer records of movements of thyro-arytenoid muscle of cat during stimulation of the recurrent laryngeal nerve at frequencies of 90, 100 and 110 c/s. Note the absence of clonic movements at 110 c/s.

consideration of the central nervous system and its pathways cannot lead to any decision as to the validity of one or other theory.

#### THEORETICAL OBJECTIONS TO THE CLONIC THEORY

The most rapid rate of contraction of skeletal muscle is reported by Ladd Prosser to be in the wing of a fly, which vibrates at a rate of 330 per second. Even if this were possible in the larynx, it would not affect the argument, since vocal pitches as high as 2048 C/S have been recorded.

Many years ago Sherrington demonstrated that if a skeletal muscle be stimulated by rhythmical electrical impulses, it goes into

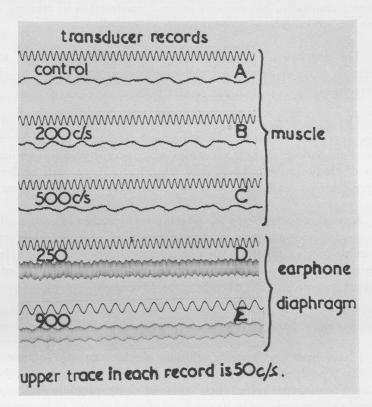


Fig. 6.—Transducer records. A, B and C were recorded from the surface of the thyro-arytenoid muscle. B and C were taken during stimulation of the recurrent laryngeal nerve at frequencies of 200 and 500 c/s respectively and show no difference from A which was recorded in a control period during which the recurrent laryngeal nerve was not stimulated. D and E were recorded by the transducer system with the transducer probe resting against the diaphragm of an earphone vibrating at 250 and 900 c/s respectively. The amplification used in the transducer recording was the same throughout. Note that the transducer responds to movements at a frequency of 900 c/s.

tonic contraction (Fig. 3). If electromyographic potentials (e.m.g.) be picked up from the contracted muscle they are found to correspond to the rate of stimulation of the muscle, which, however, does not contract clonically, but remains in tonic contraction or tetanus, even when the stimuli are no more than 67 per second.

The conclusion is that the mere recording of induced action potentials is no evidence that the muscle is in rhythmical or clonic contraction.

The main practical support for rhythmical contraction of the thyro-arytenoid muscle appears to be the recording of action potentials during phonation; there is no reason why there should not be indications of clonic contraction at slow rates, but only, as will be demonstrated later, at pitches below those of ordinary phonation in man.

Anyone who has heard the piercing high-pitched cries of a gibbon will, on this evidence alone, doubt the possibility of clonic contraction; dissection of the larynx of such an animal shows upturned, valvular inferior thyro-arytenoid or vocal folds, with no attachment of the adjacent muscle to their membranous coverings.

#### EXPERIMENTAL EVIDENCE

I have been fortunate in arousing the interest of Professor Neil and Dr. Floyd, whose expert knowledge of physiological problems has been of extreme value; their access to electrophysiological apparatus and their experience in its use have allowed theory to be supported by practical demonstration.

Experiments were carried out in the Middlesex Hospital Medical School on the larynx of cats, with rhythmical stimulation of the recurrent laryngeal nerve, the electromyographic response (e.m.g.) of the thyro-arytenoid muscle being recorded at the same time by means of a cathode ray oscilloscope. At frequencies of 50 and 100 C/S a large response followed each stimulus and at rates as high as 250 C/S occasional response was found in the muscle (Fig. 4).

At higher frequencies, however, there was no obvious relationship between the e.m.g. potentials and the stimulation frequency.

These experiments indicate that although the muscles bounding the glottis might contract rhythmically at low rates, yet at higher frequencies they obey the laws of other muscles and go into tetanic or tonic contraction, as envisaged in the usually held theory of phonation.

A second series of experiments was carried out by means of a piezo-electric transducer. This consists of a slender steel wire resting against the free margin of the thyro-arytenoid fold, its other end being fixed to a diaphragm which conveys vibrations to a crystal; compression of the crystal produces currents which can be amplified and recorded on an oscilloscope, thus giving a tracing of the actual mechanical movements of the vocal fold.

Rhythmical stimulation of the recurrent nerve of one side showed that a rate of 90 stimuli per second caused vibration of the muscle at the same rate: a similar result was recorded at 100 C/S, although at this rate the clonic contractions were much smaller in amplitude. At 110 shocks per second no clonic movements occurred (Fig. 5).

To make certain that the apparatus was capable of recording higher rates of vibration, the tip of the transducer was placed in contact with the diaphragm of an earphone, which was made to vibrate at various frequencies.

The transducer was found to record accurately oscillations at rates of 250 and even 900 C/S (Fig. 6).

The evidence of comparative anatomy, of mechanical experimentation and of investigation by various electrophysiological methods leads to the conclusion that the clonic theory is untenable.

149 HARLEY ST.

#### DISCUSSION

Dr. Louis H. Clerf: Mr. President, it is a privilege to hear Sir Victor discuss any problem concerning the larynx for he is the authority in that field.

I was greatly flattered when asked to discuss this paper. I fear that I do not undersatnd Sir Victor's presentation so am not competent to discuss it. Changes in concepts need not always be interpreted as evidences of progress.

With regard to Dr. Wilkerson's paper, I have a very lively interest in this entire problem. There is a great need among laryngologists to avail themselves of the benefits of speech therapy. While I am not too familiar with the methods of application I appreciate its importance. The mere fact that we do not appreciate how it should be applied does not mean that it should not be utilized. It is unnecessary to tell you that training is required for the laryngectomized patient if he wishes to talk. The average laryngologist has neither training, time nor inclination to do this, so he must delegate it to another, who is trained.

My interest lies in the field of keratosis, vocal nodule and contact ulcer, so far as speech therapy is concerned. For many years we believed that the laryngoscopic findings were the cause of a patient's disability and the voice changes were symptoms. The laryngologist must recognize these conditions and must determine the proper methods for their correction.

Dr. Wilkerson referred to the importance of dentistry. Dentistry is an important problem when we discuss articulators. I always recall a patient, a woman, who had a number of teeth removed. That, of course, disturbs one's ability to articulate and when the dentist prepares a denture unless he is careful he may change the patient's voice slightly. This patient had a bony prominence in the roof of the mouth, a torus palatinus. He apparently was not familiar with that sort of thing and decided to cover the entire mass with the palatal process of the denture with the result that the patient had, shall we say, a foreign speaking denture. It was necessary to correct the denture leaving the torus exposed and that gave her an English speaking denture. That is an important subject and I certainly wish to emphasize the interest of the laryngologist in speech therapy.

Dr. Fred W. Dixon: Members and Guests, I deeply appreciate the honor of being asked to discuss these two very interesting papers. I feel, like Dr. Clerf, that I am a little more qualified to speak on the everyday problems that confront us rather than on the highly complex mechanism of voice production. The speech therapist is of great value to the laryngologist. He occupies the same position as the audiologist does to the otologist. I believe that in our schools and colleges today more attention should be paid to respiration, phonation and articulation and to the elimination of our present day slang.

Today the receptionist, the telephone operator, the stewardess and the salesmen are chosen because of a pleasant voice. The vocal cords can stand great abuse as exemplified by the actress who sang on Broadway for over two years in *South Pacific*. At the end of that time the vocal cords were nodular and showed certain fibrotic changes, yet the following year she again appeared in another production singing in a very clear tone, and the voice seemed to have suffered no damage. Vocal re-education and training are a great help.

We occasionally see patients who by shallow breathing produce a weak unsupported voice or those patients who speak on inspiration rather than on expiration, producing an unnatural voice. Both of these can be corrected.

The tone range of the individual is about two octaves. Some of our patients persist in using the lower register producing a glottic trauma. If we can educate those people to use a higher tone it is often of great benefit to them, providing we emphasize that the simple elevation of tone alone will not eliminate this glottic shock. They must produce a clear tone.

Public speakers and auctioneers and those who have to use their voice in excess will very often be greatly benefited by elevating the tone, producing a clearer

tone and by modulating the voice. Faulty speech habits, excessive smoking and certain metabolic disorders will sometimes produce changes in voice.

Dr. Wilkerson mentions vocal nodules. I wonder if he relies solely upon surgery for their disappearance or does he advocate vocal retraining following surgery? Also how long after he has removed certain growths from the cords does he forbid the patient to talk? Does he advocate a soft whisper or does he eliminate all whispers? I would like to add my appreciation of these two excellent presentations.

Dr. WILLIAM J. McNally: Mr. Chairman, Sir Victor, Dr. Wilkerson, and Ladies and Gentlemen, unlike my two predecessors, I am not really qualified to discuss either of these papers. For that reason I feel very free to speak.

I would like to thank Dr. Wilkerson for his interesting presentation.

Coming from Montreal, I have always envied the people who could say that they had known or seen or heard Osler. We can all go home from here and tell our children's children that we have had the privilege of seeing and hearing Sir Victor Negus.

I will not discuss what he said but I would like to discuss with you by what authority he said it. We are rather disturbed today by so much hurry and the possibility of so much leisure. We are being deluded because there is really not as much leisure as we think if we wish to accomplish anything that is worthwhile. The good Lord has said that man shall live by the sweat of his brow. I am not being unrealistic when I ask each one of us, particularly the younger ones of us, to remember about the sweat of our brows. It is not popular but hard work is very necessary. We should repeatedly ask the good Lord for help to persevere. I would remind each of you that Dame Nature is very jealous and ask if you can think of a single instance where she was courted successfully by anyone who did not exhibit serious intent and hard work.

With apologies to Sir Victor, I would guess, as we listened to him today discuss a controversial subject with clarity and fearlessness, distinguishing between theory and fact, that some of us might like to have exchanged places with him.

But what would that have implied? I would point out that for many years Sir Victor's laboratory was the London Zoo and that he went there every day, month in and month out, for years. Not one animal but every species in the zoo was carefully examined, and the function of the larynx determined. He dissected out, photographed and carefully preserved the specimens. Some of us had the privilege of seeing that collection with Sir Victor himself. In addition to this inspired curiosity, he had the God-given intellect that allowed him to determine the fundamental laws which govern the subject in which he was interested.

I would ask you to take down from the shelf his book on the "Mechanism of the Larynx." It is a beautifully illustrated book. I might add that some of the illustrations and the index were prepared by Lady Negus. It is a clearly and simply written legend, having the clarity and simplicity which is engendered by one who is seeking the truth. Put the book on your bedside table and read it carefully. Read it at your leisure. Take it on a holiday with you and give it an hour each day and you will be well rewarded. Don't hurry through it. The work was carefully done, the book beautifully written, so give it time.

Dr. W. W. Wilkerson (closing): Mr. Chairman, Sir Negus's discussion was certainly timely, in view of the fact that there are many questions in regard to phonation that still need amplification and understanding.

We have had distinguished discussers and since they have so definitely stated that they were in no position to discuss these papers, they have thoroughly convinced me that I should not have written one in the first place.

It is interesting to think in terms of the raising of the pitch, thereby changing the modulation. Due to the fact that raising the pitch reduces the energy utilized in phonating, it is of therapeutic value in cases with vocal nodes.

Dr. Dixon asked if I use surgery alone in the case of vocal nodes. The answer to that is "no." In the early stages I would use absolute voice rest. Later, voice rest and voice therapy are very effective in many cases. Also, in the later stages where surgery is indicated we use voice rest, the periods of time varying, depending upon the reaction of the patient's voice following surgery and the rapidity of the healing process. In prescribing voice rest it is emphasized to the extent that we tell patients they can whisper only in case of fire or murder.

Thank you very much!

SIR VICTOR NEGUS (closing): I am sorry that I have not had any contradictory criticisms because it is the best way of finding out whether the theory is wrong. But no doubt some of the members may like to think about this and come and tell me later if they feel there are points which ought to be considered further.

Dr. McNally was very kind in speaking on the "Mechanism of the Larynx," advising people to take it and read it in bed. One friend told me that "Your book is quite impossible to read. I weighed it. It is six and one-half pounds."

I am afraid it is not a bedside book. I appreciate very much indeed his kind remarks.

Thank you very much!

## MALIGNANT LYMPHOMAS OF THE PHARYNX

STANTON A. FRIEDBERG, M.D.

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An analysis of the clinical and pathological data on ten patients with malignant lymphomas of the nasopharynx and pharynx is contained in a previous report.<sup>1</sup> Further observations on several of these patients and six additional cases form the basis for this communication.

#### SUMMARY OF PREVIOUS OBSERVATIONS

Though the presenting symptoms of patients with malignant lymphomas of the pharynx are frequently confined to this area, these local manifestations are but one phase of a systemic affliction. Only rarely does the disease remain localized and, when it does, the diagnosis must be reconsidered. However, predictability of dissemination to other parts of the body on the basis of microscopic interpretation of pharyngeal biopsies alone is difficult. A more valuable prognostic sign would appear to be the duration of remission which follows initial diagnosis and treatment.

The term malignant lymphoma refers to a complex group of presumably neoplastic disorders which includes various types of lymphosarcoma, as well as Hodgkin's disease. It is convenient to attempt to classify each case but one is often impressed with the lack of any sharp distinction between different types of malignant lymphomas.<sup>2</sup> Although we specified follicular, lymphocytic, lymphoblastic, reticulum cell and Hodgkin's types of malignant lymphoma in our previous

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report, it was noted that microscopic features of several types might be present in different organs or at different times in any given case. One is thus led to suspect that the various types represent variants of the same process. Since there may be considerable disagreement among pathologists as to the dominant cell type in any given case, it has been suggested that the entire group be simply designated as lymphosarcoma. We prefer the term malignant lymphoma.

If, as rarely occurs, a malignant lymphoma does not manifest itself subsequently in other areas, one may justifiably conclude that it represented a single isolated focus of disease or an error in diagnosis. The reticuloendothelial reaction to infection (particularly in the pharynx) and true neoplasia are occasionally indistinguishable. More often, however, isolated foci appear at varying intervals in other areas and, since the routes of spread are not the customary ones for metastatic neoplastic disease, one is led to the conclusion that multicentric foci of origin are implicated in the pathogenesis of the lymphomas.

Clinically, it is impossible to distingush between the various forms of malignant lymphoma arising in or having their primary manifestations in the pharynx.

The sensitivity of malignant lymphomas to therapy with irradiation is well-known. Large tumors often begin to recede following treatment with as little as 800 r and complete local dissolution may be anticipated with relatively low total dosage. Repeated irradiation and the use of newer chemotherapeutic measures for disseminated disease are effective controls for varying intervals.<sup>3</sup> Eventual lack of response is to be expected, however, and occasionally the measures employed in the control of the disease may result in undesirable tissue alterations which are responsible for a fatal outcome.

In the last analysis, we are dependent upon the continued microscopic examination of tissue and correlation of this with the patient's clinical history for an accurate evaluation of any given situation. Unfortunately this may not be forthcoming until the disease has run its course or the intensive therapy has had too many undesired effects on normal tissues.



Fig. 1.—(Addendum II, Case 3 in previous series.) Tumor involving left lateral pharyngeal wall. Malignant lymphoma, lymphoblastic type.

### SUBSEQUENT COURSE OF THREE PATIENTS PREVIOUSLY REPORTED

Addendum I. In our previous report, Case 2 was that of a 55 year old woman with an enlarged left tonsil and a solitary cervical node on the same side. The microscopic diagnosis rested between an abnormal response to infection and malignant lymphoma of the lymphoblastic type. X-ray therapy was successfully employed. She was kept under observation and remained well for almost five years, at which time an enlarged node appeared in the right axilla. This was removed and found to represent a typical malignant lymphoma of the Hodgkin's type. In reviewing the biopsy of the tonsil, it was still impossible to make a diagnosis of Hodgkin's disease although certain clues indicated that such a diagnosis might be seriously considered.

Nasopharyngeal obstruction by lymphoid tissue caused symptoms one year later. This was soon followed by a cervical enlargement on the right side which was diagnosed in Germany as Hodgkin's disease. A left supraclavicular mass, enlargement of the liver and spleen and worsening of her general health became evident in April, 1957. She has received three courses of nitrogen mustard therapy and appears to be in poor condition at this time, nearly six years after the onset of symptoms.

Comment. Almost all authors have mentioned the variability of the histopathologic pattern between different areas of disease in the same patient. The interrelationship of Hodgkin's disease and other lymphatic tumors has been described by Custer and Bernhard.<sup>4</sup> In this particular instance, the reactions of severe chronic inflammatory disease, lymphoblastic lymphosarcoma and Hodgkin's disease can all be identified in the available material.

There is wide variation in the course of malignant lymphomas in different patients.<sup>5</sup> The initial remission of five years in this case is of interest. Whether longer survival is to be expected in females with Hodgkin's disease has been a subject of controversy. The course of this female patient can be contrasted with that of a male with Hodgkin's disease of the tonsil who lived but two months from the onset of his difficulty.<sup>1</sup>

Addendum II. A 73 year old man (Case 3 in our previous report) had a malignant lymphoma of the lymphocytic type involving the left lateral pharyngeal wall (Fig. 1). The possibility was entertained that the process might be benign. Four and one-half years later, a node appeared in the right supraclavicular area and was diagnosed as lymphosarcoma. An exploratory laparotomy revealed gastric involvement by lymphosarcoma. He received x-ray treatment to the abdomen. One year later, nodes appeared in the right cervical region and these were also treated. The microscopic diagnosis at this time was Hodgkin's disease. He is now 80 years old and has lived for six years since the original diagnosis, there having been an initial remission period of four and one-half years.

Comment. In both this case and the preceding one there were elements in each initial biopsy which suggested a reaction to inflammation. In each instance it was anticipated that the true nature of the process would only become evident with the passage of time and in each instance new foci of disease did not appear for almost five years. The optimism which existed during this period has been dispelled by subsequent events since, in both cases, the original opinions of malignant lymphoma of the lymphocytic and lymphoblastic types have now been changed to malignant lymphoma of the Hodgkin's type in subsequent biopsies from other locations.

Addendum III. A 40 year old man (Case 10 in our previous report) had an undifferentiated malignant lymphoma (reticulum cell type) of the pharynx. Shortly after initial treatment of this malignancy, he developed intestinal obstruction for which resection of an intestinal lesion was performed. This lesion was diagnosed as a malignant lymphoma (reticulum

cell type). A diffuse retroperitoneal nodular tumor was also noted at operation. He received x-ray therapy postoperatively and has remained free of disease for the past four and one-half years.

Comment. The anaplasia of this patient's tumor was regarded as an extremely poor prognostic sign, as was the short remission period following the original diagnosis. Nowhere do we see better proof of the unreliability of immaturity of cell type as a basis for absolute predictability of the future behavior of malignant lymphomas. Prognosis in individual cases is extremely difficult to determine by microscopic methods and Hall and Olson have aptly questioned whether the histologic diagnosis made by the pathologist has any significance other than to establish the diagnosis of malignant lymphoma.<sup>5</sup>

# REPORT OF ADDITIONAL CASES

# Malignant Lymphoma, Reticulum Cell Type (three patients)

Case 11. F.C., a 96 year old white male, was seen at Presbyterian Hospital in April, 1954. Despite his age, this was his first hospital admission and the reason given was shortness of breath. On the evening before admission a doctor had made a diagnosis of a left peritonsillar abscess and had attempted to incise the mass. This brought on an acute episode of obstructive dyspnea, for which a pulmotor squad was summoned.

When seen at the hospital, he had respiratory obstruction due to a huge mass occupying the oropharynx and extending outward into the mouth (Fig. 2). There was a recent wound on the superior lateral surface of this mass. An emergency tracheotomy was performed. Several days later, with gas anesthesia administered via the tracheostomy, a biopsy of the left tonsil was performed. The sections revealed a malignant lymphoma of the reticulum cell type. There were no enlarged lymph nodes. The liver and spleen were not enlarged.

X-ray therapy was administered and before the patient had received 1000 r the tonsillar mass had begun to shrink. He received 2000 r. The tonsil became atrophic and he was well until December, 1954, when he developed a painless node in the right axilla. This was also treated with x-ray therapy (1800 r). The patient seemed well for his 97 years but gradually weakened and died at home on April 3, 1955, one year from the date of diagnosis. No autopsy was obtained.

Microscopic Study: The material consists of several pieces of tissue removed from the right tonsil. These fragments are partly covered by stratified squamous epithelium. Beneath the epithelium there is a mass of lymphoid tissue which has no discrete follicular structure. There are a few circumscribed areas which seem to represent either remnants of pre-existing lymphoid follicles or demarcated hyperplastic follicular structures which have little resemblance to normal lymphoid follicles. There are a few residual islands of lymphoid tissue in some fragments but

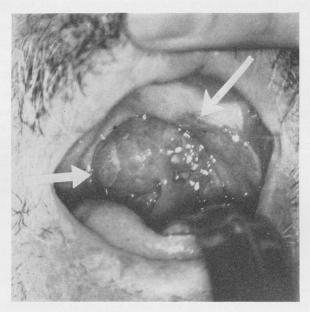


Fig. 2.—(Case 11) Left tonsillar mass filling entire oropharynx. Upper arrow points to site of incision made elsewhere for "peritonsillar abscess." Reticulum cell sarroma.

most of each fragment is composed of large immature cells in which the nucleus occupies the principal part of the cell structure. The nuclei are round with occasional indentations. Nucleoli are prominent. Mitotic figures are common. The cytoplasm is not conspicuous. The cells are distinct from one another and do not occur in sheets or in any regular formation. The dominant cell type resembles a very immature reticulum cell and it would seem proper to classify the tumor as a malignant lymphoma of the reticulum cell type.

Comment. Despite the size of the tumor there was no gross ulceration. The appearance microscopically is that of a highly malignant form of reticulum cell sarcoma. Due to the advanced age of the patient, no conclusions can be drawn regarding survival rate. Comparison with the case recorded in Addendum II, and with others of the reticulum cell type described previously, would again point to the undesirability of depending too much on the type of cell as an absolute basis for prognosis.

CASE 12. L.G., a 35 year old German, had been in the United States for ten weeks prior to admission to the Out-Patient Clinic at Presbyterian Hospital in April,



Fig. 3.—(Case 12) Infiltration of right posterior tonsillar pillar by tumor mass which extends into nasopharynx. Reticulum cell sarcoma.

1955. Fourteen months previously he had a gastric resection in Germany for peptic ulcer. (A detailed report of the microscopic study was obtained and there was no indication of lymphoma.) Four months ago he had undergone surgery for relief of nasal obstruction. He had noticed impairment of hearing in the right ear for six weeks and for five weeks he had been conscious of a swelling in the right side of this throat and a change in his voice. In the two weeks before seeking medical attention he had chills and fever, progressive difficulty in swallowing and inability to breathe while lying down because of the obstruction in his throat. There had been loss of appetite and a loss of 25 pounds of weight in three months.

On examination, the pulse, blood pressure, respiration and temperature were normal. His weight was 152 pounds. The principal findings were limited to the pharynx where a bulge of the right half of the soft palate was continuous with a swelling lateral to the right tonsil. The right tonsil was displaced medially. There was infiltration of the right posterior tonsillar pillar and a larger mass almost filling the nasopharynx (Fig. 3). No ulceration was observed. There was fluid in the right tympanum. There was no lymph node enlargement. The liver, spleen and kidneys were not palpable. Chest x-ray was negative. The hemogram was normal. A biopsy of the mass behind the right tonsil was made. The microscopic diagnosis was malignant lymphoma of the reticulum cell type.

The patient was referred for irradiation therapy and received 2700 r to the pharynx. Following this, the nasopharynx and oropharynx were entirely clear.

On August 2, 1955, he was admitted to the hospital because of continued weight loss, nausea and anorexia. There was mild anemia with a normal differential count. Blood chemistry tests were normal. He was given a high caloric diet and discharged in three days.

He was again seen on August 18, 1955, with a complaint of left lumbar pain. An intravenous pyelogram disclosed a mass displacing the left kidney downward and laterally. Gastric fluoroscopy showed an extrinsic mass compressing the fundus on the lesser curvature. X-ray therapy to the abdomen was instituted and he received 1700 r. His weight at this time was 126 pounds, representing a loss of 26 pounds since admission in April, 1955.

In late September, 1955, a mass measuring 3 x 3 cm was evident in the right femoral triangle. He had pain over the lower thoracic spine and pelvis, although no lesions of bones were observed on roentgenograms. X-ray treatment (1000 r) relieved this pain.

On November 1, 1955, x-rays disclosed left pleural effusion with marked mediastinal widening. He was dyspneic and stated that pain was present in the left upper abdomen. His ankles were swollen and he had been coughing up blood for three days. Anemia was marked (Hb., 7.6 gm %, and an erythrocyte count of 2,340,000). Neurological examination disclosed the possibility of left cerebellar involvement. He was given Meticorten without improvement and this was followed by nitrogen mustard therapy. Repeated thoracenteses were done to remove fluid from the left pleural cavity. His weight diminished to 112 pounds. Episodes of abdominal pain were frequent. There was progressive enlargement of the mass in the left upper abdomen. Narcotics were used to control severe pain. The bone marrow was normal except for changes due to therapy. He became progressively weaker and died on December 2, 1955, seven months after the diagnosis of malignant lymphoma was made and approximately eleven months after the onset of initial symptoms.

Microscopic Study. A section of tissue removed from behind the right tonsil reveals a covering of stratified squamous epithelium which is infiltrated by polymorphonuclear leukocytes and large cells resembling neoplastic reticulum cells. There is no demarcation between the epithelium and the underlying tumor. The epithelial penetration by neoplastic cells is quite different from that often encountered in tumors arising from epithelium in this region and which are usually designated as transitional cell carcinomas or lympho-epitheliomas. There is no trace of lymphoid structure in the main mass of tumor which consists of cells varying greatly in size and shape. The cells have large nuclei. Mitotic figures are common. The cytoplasm is voluminous and weakly stained. The cells do not occur in sheets or any other specific arrangement except that they are not adherent to one another. The dominant cell type closely resembles a malignant reticulum cell and the tumor is classified as a malignant lymphoma of the reticulum cell type.

Necropsy. The pathological diagnoses included malignant lymphomatous involvement of the mediastinal and peri-aortic lymph nodes, the left lung, liver, spleen, diaphragm, pericardium, adrenal glands and the stomach. In the stomach there was extensive involvement with evidence of the previous partial gastrectomy. The only organs not involved were the brain, kidneys, pancreas, thyroid, parathyroid and bone marrow. The cytology was that of a malignant lymphoma of the reticulum cell type.

Comment. This case illustrates a rapidly-developing systemic disease which appeared first in the pharyngeal area. Treatment was not effective. At no time was there evidence, other than anemia, of any abnormality of the hematopoietic system. All factors which account for the variable course of these diseases are not known but the variability is often vaguely attributed to "varied virulence," "evolutionary form" and "inherent quality of the disease." This patient did not exhibit any of the sequelae which often follow the administration of suppressive therapy, possibly because of his relatively short survival. It is more likely that this patient had severe generalized unrecognized internal lymphomatosis when first seen. Certainly, the degree of involvement of vital internal organs, though often unknown, is more important in prognosis than almost anything else.

Case 13. E.N., a 45 year old male, had severe nasal obstruction and right-sided headaches for several months prior to the onset of intermittent double vision. He was examined by his family physician in early January, 1957. Between January 19 and January 30, there was progressive loss of vision in the right eye so that only light perception remained. He was admitted to a suburban hospital where a submucous resection and rhinoplasty were performed on January 30. According to the reports, he seemed improved for several days but then experienced further deterioration of vision with the additional development of unilateral right exophthalmos and ophthalmoplegia. Roentgenograms taken at this time were "inconclusive."

According to information received, ten days later an external approach to the ethmoid area was undertaken and a large amount of polypoid tissue was encountered. Apparently there was destruction of bone in the ethmoid and sphenoid regions. Microscopic diagnosis of the tissue was "markedly inflamed nasal polyps." The patient was reported to have improved slightly after the second operation but improvement was of short duration.

At about this time a swelling occurred at the site from which a right lower molar tooth had been extracted. The swelling was accompanied by enlargement of a lymph node overlying the right submaxillary gland. A biopsy of the alveolar swelling was taken and all the previous material was reviewed. It was decided that the patient had a malignant process, probably primary in the nose, with metastases to the sinuses and that the lesion was a malignant melanoma.

The patient was then transferred to Presbyterian Hospital under the care of Dr. D. P. Slaughter who asked one of us to see him. The pain was such that the patient required sizeable narcotic dosage every four hours. There was proptosis (4 mm), ophthalmoplegia and complete optic atrophy of the right eye. Intranasal examination was negative but there was a large mass in the nasopharynx. Swelling of the right first molar area, a large lymph node in the right submaxillary area, and a right serous otitis media were other physical findings. The hemogram, chest x-ray and chemical analyses of the blood were normal.

Biopsy of the nasopharyngeal mass was interpreted as a malignant lymphoma of reticulum cell type. X-ray therapy was undertaken and after approximately 800 r had been given there was marked improvement. He received an estimated

2000 r to the pharynx. The proptosis disappeared and ocular mobility but no vision returned. No medication was required for pain.

Several weeks later a palpable mass appeared lateral to the healed external ethmoidectomy incision on the right side. This region was also treated by irrad ation with prompt regression following 1200 r. A right peripheral facial paralysis developed in April, 1957, followed by weakness of the left arm and leg. Steroid therapy (Meticortelone®) was started at this time.

Microscopic Study. A section of the biopsy from the mass in the nesopharynx is almost entirely composed of neoplastic tissue partly covered by normal ciliated respiratory epithelium. The epithelium extends into the neoplastic tissue in small crypts. The tumor is uniformly cellular with very little stroma. There are no lymphoid follicles nor are there any areas in which lymphocytes are abundant. The principal cell of the tumor is large with a preminent nucleus and relatively little cytoplasm. The nucleus is irregular and often has indentations. Nucleoli are large. Mitotic figures are numerous. Eosinophils are uniformly distributed throughout the tumor. There is no necrosis. No typical Reed-Sternberg cells are encountered. This tumor is perhaps best classified as a malignant lymphoma of the reticulum cell type. It might be regarded as a Hodgkin's type of malignant lymphoma because of the large number of eosinophils, but there are no other features of Hodgkin's disease.

Comment. It would seem that this patient's primary lesion must have been in the nasopharynx, with subsequent rapid spread to the ethmoid, sphenoid and orbital areas. Involvement of the cranial nerves followed thereafter. Local rather than systemic extension will doubtless cause the patient's expected demise and this is the first example of such a mechanism in the entire series. In all other instances the pharyngeal growth has vanished rapidly after treatment and has not reappeared either at or near the original site.

Another feature of this case is the lack of clear microscopic distinction between reticulum cell sarcoma and Hodgkin's disease. This difficulty in diagnosis is often more apparent to the pathologist than to the clinician.

# Malignant Lymphoma, Lymphoblastic Type (two patients)

Case 14. I.A.S., a 56 year old negress, was first seen in May, 1950, with a skin condition thought to be atopic dermatitis. One year later a diagnosis of marked hypertrophy and chronic infection of the tonsils was made. On several subsequent occasions she was seen with acute tonsillitis and recurrent swelling of both parotid glands. Her clinic attendance was irregular and several appointments for tonsillectomy were broken. Weight loss, generalized arthritis, a persistent skin eruption and mild cardiac decompensation were noted. Chest roentgenograms were negative. Hemograms were normal.

Tonsillectomy was performed in April, 1952, for the relief of marked pharyngeal obstruction and recurrent tonsillitis. Although histological examination had been requested, tissue was not sent to the laboratory from the operating room. The patient was seen repeatedly because of intermittent, recurrent, bilateral, parotid enlargement. Sialograms were normal. She had atrophic rhinitis with associated crusting and tentative clinical diagnoses included Boeck's sarcoid, Mikulicz's syndrome and lymphosarcoma.

The nasopharynx was examined with negative results. The blood count showed a reversal in the usual polymorphonuclear-lymphocyte ratio.

In September, 1953, abnormal nasopharyngeal tissue appeared along with a solitary axillary lymph node. From biopsies of these, a diagnosis of malignant lymphoma of lymphoblastic type was made in each instance. Recurrent parotid and submaxillary gland enlargement, dry mouth, purulent nasal discharge and persistent skin eruption led to her hospitalization in October, 1953. At this time the blood count showed 10 gm per cent of hemoglobin, an erythrocyte count of 3,400,000 and a leukocyte count ranging from 7,000 to 9,000 with 31 per cent neutrophils, 64 per cent lymphocytes and no abnormal cells. A weight loss of 60 pounds in two years was recorded. Anterior and posterior cervical, inguinal and axillary adenopathy was noted. No mediastinal involvement was evident. Bone marrow studies disclosed lymphocytosis consisting of mature lymphocytes. X-ray therapy to the enlarged lymph nodes was instituted. This was followed by a course of triethylene melamine (30 mgm over a three week period).

Her appearance at the clinic during 1954 was irregular. Fatigue, loss of appetite, loss of hair and pain in the parotid regions were prominent symptoms. In August, 1954, she complained of headache, chest pain, diarrhea and vomiting. Roentgenograms of the chest and intestinal tract were normal. She entered Cook County Hospital on October 10, 1954, and expired several days later, four and one-half years after her initial clinic visit and one year after a definitive diagnosis had been established.

Microscopic Study. Tissue removed from the nasopharynx contains many immature cells with large nuclei and abundant cytoplasm. There are a few eosinophils and occasional hyperchromatic reticulum cells suggestive of Reed-Sternberg types. Some parts of the tumor might be regarded as a malignant lymphoma of the reticulum cell type, other parts as lymphoblastic type and other parts as Hodgkin's type. The predominant cell is an immature large lymphocyte.

Microscopic study of axillary lymph nodes shows obliteration of normal structure by large numbers of lymphoid cells which are closely packed together. There is no trace of lymph sinuses. There are many mature lymphocytes between which there are occasional large atypical reticulum cells. In some areas eosinophils are numerous and there are other small areas of necrosis. The large reticulum cells at times resemble Reed-Sternberg cells. The diagnosis would seem to rest between malignant lymphoma of the Hodgkin's or lymphoblastic types.

*Necropsy.* The patient died of pneumococcal meningitis, secondary to subacute pneumococcal mitral and aortic endocarditis. The spleen, liver and genito-urinary organs were the site of lymphosarcomatous infiltration.

Comment. The initial clue to this patient's illness was the sudden appearance of marked tonsillar hypertrophy of sufficient degree to

cause pharyngeal obstruction. An unfortunate delay in diagnosis resulted from failure to obtain microscopic study of these structures, as had been requested, or of the skin. Evidence of mild systemic involvement, however, can be assumed to have been present from the onset of symptoms and took the form of skin eruption (a common manifestation of malignant lymphomas), weight loss and persistent infections. By the time the diagnosis was made on biopsies of nasopharyngeal tissue and axillary lymph nodes, there was a reversal of the polymorphonuclear-lymphocyte ratio and this persisted throughout the remainder of the patient's life. Although a frank picture of lymphatic leukemia was not apparent, this may at times be associated with any type of malignant lymphoma.<sup>2</sup> This is the only instance in our series of an abnormal blood finding other than anemia and this finding is of no diagnostic significance.

Features common to lymphoblastic, reticulum cell and Hodgkin's types of lymphoma were found in examination of the material from this patient, again lending further evidence to the theory that these tumors share a common origin.<sup>2,3,5,6</sup> Relations among these processes to mycosis fungoides or the Mikulicz syndrome should also be emphasized in connection with this patient's clinical course.

Case 15. W.B., a 59 year old housewife, was first seen by Dr. L. J. Wallner in January, 1957. Nasal obstruction, present for one year, had increased in recent months. On examination the nasal passages and sinuses appeared normal. The nasopharynx was filled with a mass resembling lymphoid tissue (Fig. 4). The oropharynx and larynx were normal, as were the tympanic membranes. The hemogram was normal.

Employing local anesthesia, nasopharyngeal tissue was removed with punch forceps. A frozen section diagnosis of "lymphoid tissue" was made. Paraffin sections, however, were interpreted as representing a malignant lymphoma of the lymphoblastic type.

The patient received, elsewhere, approximately 4500 r through two portals of 8 x 20 cm to the nasopharynx and cervical region. This resulted in disappearance of the residual nasopharyngeal enlargement. She is now being observed at monthly intervals for evidence of local or systemic disease.

Microscopic Study. The material consists of several fragments of tissue partially covered by squamous and a ciliated respiratory type of epithelium. The tissue is lymphoid in character with scattered lymphoid follicles. The follicles are, as a rule, quite large and not sharply demarcated from the cells which lie between them. The follicle cells are abnormal, being intermediate in size between the large reticulum cells normally found in the center and smaller lymphoid cells at the periphery of follicles. There is a tendency for the cells to be multi-angular, with nuclei slightly larger than those of normal lymphocytes. The cytoplasm is scanty



Fig. 4.—(Case 15) Mirror view of nasopharynx showing tumor mass of sufficient size to occlude both choanae. Malignant lymphoma, lymphoblastic type.

and mitotic figures are not numerous. Cells of this type have completely replaced normal lymphoid tissue in many areas. Judging from the predominant cell type, this malignant lymphoma is best classified as a lymphoblastic type.

Comment. It has been stated that the only two histological pictures likely to cause problems in the differential diagnosis of malignant lymphoma are those of severe chronic inflammation on the one hand and highly anaplastic carcinoma on the other. Difficulty also may arise in dealing with leukemias, small-cell sarcomas, infectious mononucleosis, conspicuous hyperplasias and other processes. It becomes increasingly difficult in frozen sections which, in this instance, were done and incorrectly interpreted. It is too early in the course of this patient's illness to render a prognosis. The fact that she had localized symptoms for one year prior to diagnosis may be a favorable sign with respect to any immediate prospects of recurrence. The eventual prognosis, however, must be guarded since all available

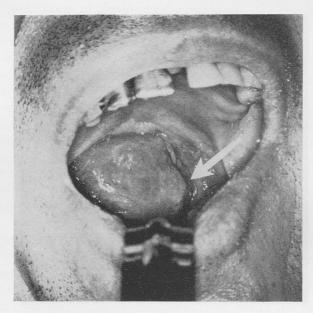


Fig. 5.—(Case 16) Large non-ulcerated mass occupying right tonsillar fossa, almost entirely occluding oropharynx. Arrow points to only remaining communication between mouth and pharynx. Malignant lymphoma, lymphocytic type.

evidence indicates that, sooner or later, other parts of the body will become involved.

# Malignant Lymphoma, Lymphocytic Type (one patient)

Case 16. A.J., a 53 year old Lithuanian immigrant, began to notice tightness in his throat several months prior to admission. He had had two febrile episodes with temperature of 103 F., with chills and sweating. He had a poor appetite for three weeks prior to admission and a 12-pound weight loss in the past nine months. He was first seen in September, 1955, at which time the enlargement in his throat interfered with swallowing and talking. Examination revealed a large, reddish non-ulcerated mass occupying the right tonsillar fossa and almost occluding the pharynx (Fig. 5). The liver, spleen, lymph nodes and kidneys were not enlarged. The hemogram was normal. A tentative diagnosis of lymphoma of the right tonsil was made and excision biopsy of the mass was done. The pathologic diagnosis was malignant lymphoma of the lymphocytic type. He received roentgen therapy to

the involved area. He has been observed at monthly intervals since and, as of March, 1957, has had no local or systemic evidence of recurrent disease.

Microscopic Study. There is a large, well-circumscribed mass of lymphoid tissue covered over more than one-half of its circumference by stratified squamous epithelium. The epithelium is demarcated from the lymphoid tissue by a layer of dense fibrous tissue infiltrated with cells of lymphoid type. The main mass of tissue is uniformly composed of small cells which are not arranged in follicles. These cells are a little larger than normal lymphocytes. Their nuclei tend to be round or slightly indented and surrounded by a thin rim of pale eosinophilic cytoplasm. Mitotic figures are numerous. There are no lymphoid sinuses and very little stroma. The dominant cell type is similar to cells ordinarily classified as abnormally large lymphocytes so that this should be diagnosed as a malignant lymphoma of the lymphocytic type.

Comment. This patient has had a remission of eighteen months since initial diagnosis and treatment. One other patient, an elderly male with a lymphocytic lymphoma, lived four and one-half years before he developed systemic disease (Addendum II). A female, aged 57, with similar histological findings died as the result of disseminated lymphomatosis within a two-year period. Thus, prognosis based only upon similarity of cell types in different patients is no more dependable than predictions based upon age, sex or postulated degree of malignancy of a particular tumor. The most important unknown factor which influences prognosis in most cases would seem to be the degree of systemic involvement in vital areas not readily subjected to well-guided treatment.

# RESUMÉ

Although numerically this represents a small series, certain facts stand out. It will be noted that there are 8 males and 8 females and that the age span is from 6 to 96 years (Table I).

Of the 15 determinate cases, 9 are deceased and 3 living with evidence of disease are not expected to survive much longer. Three patients are living without evidence of disease, one only three months after diagnosis and another at 18 months. Only pessimistic predictions can be made in these two cases. The third patient, after experiencing a recurrence ten months after diagnosis, has remained free of disease for four and one-half years.

The histological type of malignant lymphoma has no particular prognostic significance except that the giant follicular type is alleged

TABLE I

MALIGNANT LYMPHOMA OF PHARYNX

# RESUMÉ OF 16 CASES

| TYPE OF<br>MALIGNANT<br>LYMPHOMA | CASE<br>NO;  | AGE AT<br>ONSET                         | SEX           | INITIAL PERIOD OF REMISSION (MONTHS)     | L I V WITH EVIDENCE OF DISEASE (MONTHS) | L I V I N G WITH EVIDENCE WITHOUT EVIDENCE OF DISEASE (MONTHS) (MONTHS) | DEAD DURATION OF DISEASE (MONTHS) |
|----------------------------------|--|---|---------------|--|---|---|-----------------------------------|
| Giant Follicular                 | 1  | 19                                      | Щ             | 0.                                       | ۸.                                      | ۵.  | ٠.                                |
| Lymphocytic                      | 3<br>4<br>16   | 73<br>57<br>53                          | MHM           | 56                                       | 92                                      | 1 : 8   | 24                                |
| Lymphoblastic                    | 2 14 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5                 | 56                                      | Z H H         | 0 17 5                                   | 1 1 1                                   | 1 1 %   | \$2                               |
| Hodgkin's                        | 9 7  | 70 25                                   | Мч            | 52                                       | 99                                      | 1 1   | 2                                 |
| Reticulum Cell                   | 7 8 8 7 11 10 8 13 12 13 13 13 13 13 13 13 13 13 13 13 13 13 | 44 44 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 | н н н X X X X | 00 | <b></b>                                 | 1 1 1 2 1 1 1 1   | 125<br>15<br>21<br>21<br>12<br>11 |

to have the best outlook. Our only patient with a malignant lymphoma of the follicular type cannot be located at this time.

The series is too small to draw any conclusions regarding the relative incidence of the different forms of malignant lymphoma. Such wide variation is to be found in the literature that one must assume it to be due to different standards and methods of classification.

Perhaps the most obvious conclusion to be drawn from Table I is that the initial period of remission seems to be the only prognostic sign of significance. (There is one exception to this statement.) The three patients with the longest survival time to date (125, 76 and 66 months) had initial remission periods of 60, 56 and 52 months respectively.

Of the 6 patients who showed signs of generalized disease soon after diagnosis by pharyngeal biopsy, none lived more than two years and some were dead in a very few months.

We feel that the best summary of this situation is to be found in the opening paragraph of an excellent article by Hall and Olson concerning 115 patients with malignant lymphomas of all types:<sup>5</sup> "The course of a malignant lymphoma varies widely from patient to patient. Some patients do not respond to any therapy and die within a few months. Many have remissions of a few months, respond less and less with future therapy, and die in from two to three years after the diagnosis is made. Some have a course similar to that of the latter group but remissions are longer, spread of the disease is slower, and they live five, ten or 15 years. In some cases these patients have a long remission from a single course of therapy and then show a rapid downhill course. Other long survivors have shorter single remissions but continue to respond to treatment for years. A few patients will remain apparently free of disease for periods of up to 25 years and then relapse and die of their disease. In some instances, especially with visceral tumors of the lymphosarcoma group, there appears to be a complete cure. A comparison of the series of untreated cases of Minot and Isaacs with the many reports of treated cases indicates that the basic course of these diseases is the same with or without therapy." To this we would like to add one note of possible optimism for the future; namely, that current therapy, if carried out vigorously, may and often does eliminate all microscopic evidence of the disease but unfortunately the locus and amount of therapy required to do this under present conditions is sooner or later lethal to the patient. Future prospects for cure under slightly improved conditions, therefore, seem good.

# DIFFERENTIAL DIAGNOSIS

As previously mentioned,<sup>1</sup> the finding of any abnormal or recurrent mass of lymphoid tissue in the nasopharynx, of a smooth unilateral swelling of the lateral pharyngeal wall, or of a unilateral tonsillar hypertrophy, with or without ulceration, should arouse suspicion of malignant lymphoma. Actually, the largest tumors and the majority of tumors we have encountered have had smooth, non-ulcerated surfaces.

Among the inflammatory conditions, peritonsillar abscess was diagnosed in two patients before admission and Harman et al. have indicated the same error in three patients in their series. With the widespread use of antibiotics, peritonsillar suppuration may become encapsulated and persist in the form of a sterile accumulation with tonsillar displacement. Retropharyngeal abscess, pharyngomaxillary space infection, infectious mononucleosis and Vincent's infection should also be ruled out.

Among the chronic inflammatory conditions, tuberculosis of the cervical vertebrae and tuberculous cervical adenitis may cause a uniform smooth pharyngeal swelling. Tuberculosis of the nasopharynx, pharynx and tonsil should be kept in mind. The reactions of severe chronic non-specific inflammation or hyperplasia may be difficult to distinguish from actual lymphomatous infiltration.

There are a number of tumors arising in the pharynx which may grossly resemble malignant lymphomas. Among these are tumors of minor salivary gland type, adenocarcinomas, lympho-epitheliomas and undifferentiated carcinomas.

Neurofibromas of the cranial nerves—often referred to as schwannomas or neurilemmomas—can simulate malignant lymphomas, particularly when the vagus nerve is involved. We have observed several instances where such a diagnostic problem arose. Chordomas, plasmacytomas and carotid body tumors should also be included in the differential diagnosis.

Differentiation of the lymphoid disorders themselves poses the greatest problem and the histological difficulties attending these decisions have been mentioned repeatedly. From a clinical standpoint there are no features which, without exception, will permit differentiation of tuberculous lymphadenitis, Hodgkin's disease, lymphosarcoma, aleukemic lymphatic leukemia, lympho-epithelioma and even undifferentiated carcinoma.<sup>8</sup>

# SUMMARY AND CONCLUSIONS

An analysis of six additional patients with malignant lymphomas of the pharynx, when added to a previous study, has brought the total number in the present series to 16. The first symptoms in each case were referable to the pharyngeal or nasopharyngeal area.

Despite the initial localization of symptoms and findings, the pharyngeal manifestations were but transitory evidence of a widespread lymphatic disorder which was almost uniformly fatal after varying periods of time.

The term malignant lymphoma refers to a group of disturbances which includes the various types of lymphosarcoma as well as Hodgkin's disease. Included in this series are one patient with giant follicular lymphoma, three patients with lymphosarcoma of the lymphoblastic type, three patients with lymphosarcoma of the lymphocytic type, two patients with Hodgkin's disease and seven patients with reticulum cell sarcoma.

The difficulties in microscopic classification of malignant lymphomas were emphasized. It was frequently possible to detect features common to more than one type of lymphoma, as well as transitions from one form to another in the same patient.

Prediction of the clinical course on the basis of the histologic picture was not dependable. The clinical course of the disease varied as widely as the microscopic type, and there was no consistent correlation between the two.

Systemic involvement usually appeared soon after the diagnosis of the pharyngeal lesion was made. Survival among such patients was usually only a few months and rarely exceeded two years.

An initial lengthy period of remission usually implied a longer survival. The three patients with the longest periods of survival had first remissions of 60, 56 and 52 months.

There were 15 determinate cases. Nine died of the disease. Three are living with evidence of progressive generalized disease. Of the three living without evidence of the disease, two are of such recent date that no conclusions are pertinent, while one is in a second period of remission which has now lasted 52 months.

X-ray therapy and chemotherapy were effective in controlling the disease for varying periods but had no curative value.

The final evaluation in any given patient with malignant lymphoma was usually not possible until the disease had run its course.

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The authors wish to express appreciation to Dr. L. J. Wallner, Maria E. Ikenberg and Louis S. Pedigo for their photographic assistance.

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## DISCUSSION

Dr. Alden H. Miller: Mr. Chairman, Members and Guests, Doctors Friedberg's and Haas' experiences with lymphomas of the pharynx have been very interesting and helpful. In attempting a discussion of their paper our files of Los Angeles County and private patients were studied for the past decade. It was found that in the last 6 years there had been 15 patients in which there had been the appearance of an initial solitary malignant lymphoma of the pharynx without evidence of simultaneous generalized or other localized disease of lymph tissue. Our experiences with these patients to a great extent parallel those of Doctors Friedberg and Haas.

This first slide shows the site and pathological classification of these tumors. It is interesting that during this same 6 year period there were 68 patients, four and a half times as many, with carcinoma of the same areas. I have included the two patients with initial lesions of an arytenoid because they are the only two that I have encountered and thought they made an interesting addition to our differential diagnosis of tumors of the larynx.

# MALIGNANT LYMPHOMAS OF THE PHARYNX

|      | 110000 / 10000 PD PARK |      | GIANT FOLLICLE<br>LYMPHOBLASTOMA | LYMPHO-SARCOMA<br>LYMPHCYTIC;<br>LYMPHBLASTIC | RETICULUM CELL<br>SARCOMA |
|------|------------------------|------|----------------------------------|---|---------------------------|
| CA   |                        | SITE | PATHO                            | DLOGY   |                           |
| (57) | Naso-Pharynx           | 6    | 1                                | 2   | 2                         |
| (4)  | Post. Pharynx          | 2    |                                  | 2   |                           |
| (7)  | Tonsil                 | 5    | 1                                | 2   | 2                         |
| (57) | Naso-Pharynx           | 6    |                                  | 5   | 1                         |
|      | Arytenoid              | 2    |                                  | 2   |                           |
| _    |                        |      | <u> </u>                         |   | _                         |
| 68   |                        | 15   | 1                                | 11  | 3                         |

Our pathologists use the classification of lymphomas which seems to be receiving universal approval. In addition to the four classes listed here should be added Hodgkins Disease (lymphoma or sarcoma) but no patient was encountered in this series with initial or solitary Hodgkins Disease of the pharynx. If it is held, as some do, that all these tumors are of common origin the order in which they appear here could constitute a grading of their malignancy as the giant follicle lymphoma is the most benign, or grade 1; the lymphocytic lymphosarcoma corresponds to a grade 2; the lymphoblastic lymphosarcoma a grade 3; while the reticulum cell sarcoma is the most malignant, or a grade 4.

The next slide reveals the results of treatment of these 15 patients. On the whole it is not very encouraging but is about the same as that reported by Doctor Friedberg and others. Almost half of the patients died in less than 2½ years, while only three are free of disease at 5 years. It is noted that just 2 of the 5 tonsil lesions, the two which were reticulum cell sarcomas, are so-far free of evidence of disease; so different from lympho-epitheliomas. It is also interesting and pleasing that the two lymphocytic lympho-sarcomas of an arytenoid are both free of disease, one 5 years after treatment. Three patients received nitrogen mustard therapy when

generalized recurrence appeared. This did not seem to bring about any change in their tumor but did give relief of pain for two to three months. It was noted that 4/5 of our patients were 60 or more years of age. We know of just two patients, not in this series, who have been clear of disease for 10 years following their treatment. One is a patient with Hodgkins sarcoma of a tonsil and the other a reticulum cell sarcoma of the naso-pharynx.

# MALIGNANT LYMPHOMA Treatment With X-Ray

|                  | DIED IN LESS THAN |                     |          | NO DISEASE AT |         |       |       |      |
|------------------|-------------------|---------------------|----------|---------------|---------|-------|-------|------|
|                  | 6 mos.            | $2\frac{I}{2}$ YRS. | 1 YR.    | 2 YR.         | 3 YR.   | 4 YR. | 5 YR. | 6 YR |
| (0) Guide Line   | 1                 | 1                   | 1        | 1             | 1       | 1     | 1     | 1    |
| (2) Post Pharynx | 1                 |                     |          |               |         | 1     |       |      |
| (5) Tonsil       | 2                 | 1                   |          | 2 (r          | )       |       |       |      |
| (6) Naso-Pharynx | 1                 | 1                   | 75       |               | 1       |       | 1     | 1    |
| (2) Arytenoid    |                   |                     | 1        |               |         |       | 1     |      |
| Ages: 18, 39,    | 42, 60, 6         | 7, 67, 68, 7        | 0, 72, 7 | 75, 80,       | 81, 83, | 87.   |       |      |

3 patients had NITROGEN MUSTARD therapy—No change in tumor but relief of pain for 2 to 3 months.

A few points of practical value should be stressed according to our pathologists. Biopsies of these lymphomas must be bigger than those adequate for diagnosing other malignancies because the pathologist must have a wide field of distribution and pattern to study microscopically. Thus, needle biopsies are inadequate in lymphomas, other than possibly Hodgkins, and frozen sections are also considered unsatisfactory. A punch should never be used, as crushed normal lymph node or tonsil tissue can look like reticulum cell sarcoma. A whole node, especially a large hard one, should be taken. When possible the whole tonsil should be removed. All tonsils removed from patients over 40 years of age should be examined microscopically. There should always be a complete blood examination for lymphatic leukemia whenever a lymph node biopsy is made. Lymphocytic lympho-sarcoma can look like leukemia. Infectious mononeucleosis can be misdiagnosed as lymphoblastic lympho-sarcoma. Early single node or border line enlargement of a node is frequently overdiagnosed. A blood picture of infection would help make the diagnosis of a benign hyperplasia.

I have enjoyed Doctor Friedberg's and Haas' paper because it has helped to reduce the confusion about this group of tumors, as well as it is comforting to learn that the experience of others with these patients has been about the same as ours.

DR. JOHN B. ERICH: Malignant lymphomas involving the pharynx probably have received less consideration in the literature than almost any other tumor of the head and neck. Consequently, Dr. Friedberg and Dr. Haas should be congratulated for their efforts in writing this paper and for their other contributions on this subject, emphasizing the types, clinical course and seriousness of these pharyngeal neoplasms.

Although the cells in most lymphomas are predominantly of one variety, microscopic features characteristic of more than one type often are evident in the same lesion; this situation has induced the authors to support the concept that these tumors have a common origin. I consider that the different types of malignant

lymphomas are closely related and that all arise from lymphocytic cells in various stages of development, from rudimentary to well-differentiated lymphocytes. Lymphosarcomas are thought to spring from lymphocytic cells and reticulum cell sarcomas from reticuloendothelial cells. However, it should be borne in mind that lymphocytes probably have their origin in reticulum cells; consequently, it is reasonable to assume that the cellular elements of a reticulum cell sarcoma represent nothing more than a primitive form of lymphosarcoma.

When I was asked to discuss this paper, I thought it would be advisable to review briefly some of the malignant lymphomas of the pharynx that have been treated at the Mayo Clinic. A total of 171 patients have received treatment at the clinic for malignant pharyngeal lymphomas during the past 20 years, including 1956. Every tumor was proved by biopsy; any case in which there was no record of histologic study was discarded from the series. These 171 patients included 117 males and 54 females. Of the lesions, 130 (76 per cent) were lymphosarcomas, 32 (19 per cent) were reticulum cell sarcomas, and eight (5 per cent) were lymphosarcomas of Hodgkin's type; surprisingly enough, there was only one giant follicular lymphosarcoma. The average age of patients with lymphosarcoma was 54.7 years; for reticulum cell sarcoma it was 52 years, and for lymphosarcoma of Hodgkin's type it was 61.4 years. The giant follicular lymphosarcoma was in a 73-year-old patient. Since I always have had the impression that malignant pharyngeal lymphomas occurred more often in younger age groups, it was interesting to find that 122 (71 per cent) of all these malignant lymphomas in the pharynx occurred in patients more than 50 years of age.

Regarding the location of these 171 lymphomas, 88 (51 per cent) involved the tonsils and palate, 48 (28 per cent) were in the nasopharynx, 10 (6 per cent) involved the lymphoid tissue at the base of the tongue, and 25 (15 per cent) occurred elsewhere in the pharynx and hypopharynx.

Except in a few instances, the pathologists at the clinic did not distinguish lymphoblastic sarcoma from lymphocytic sarcoma. However, I am inclined to agree with the authors that a histologic diagnosis of lymphosarcoma should state whether the tumor is lymphoblastic in nature, with primitive lymphocytes in evidence, or lymphocytic in type, with more mature cells predominating. Unfortunately, the histopathologic differences between the lymphoblastic and the lymphocytic forms of sarcoma are not always clear-cut, since the cellular elements in some cases are in all stages of development, from undifferentiated to well-developed lymphocytes. In general, the lymphoblastic type of lymphosarcoma pursues a much more rapid course than does the lymphocytic form.

Reticulum cell sarcomas are composed of primitive cells from the reticuloendothelial system. Contrary to the belief of many investigators that neoplasms composed of extremely undifferentiated cells are more radiosensitive and, therefore, more curable than tumors composed of mature cells, it has been my observation that reticulum cell sarcomas usually are rather radioresistant and offer a very poor prognosis. These tumors apparently grow more swiftly and terminate the patient's life more rapidly than do other forms of malignant lymphoma.

The authors apparently are of the opinion that giant follicular lymphosarcomas offer the best prognosis in this group of lesions; this is true only insofar as the duration of the disease is concerned. The one patient in my series with a giant follicular lymphoma died soon after the diagnosis was made. Moreover, I have seen many patients with this type of tumor in the parotid and submaxillary regions and all have died from the disease. Giant follicular lymphomas originally were thought to be benign, but they unquestionably are malignant neoplasms,

Time did not permit follow-up studies in this group of 171 malignant pharyngeal lymphomas. Fifty of the patients are known to be dead and, in going over the case records, I am sure that many of the other 121 patients also are dead.

Radiation undoubtedly is the treatment of choice for malignant lymphomas. Years ago, I treated many of these tumors in the pharynx with interstitial irradiation (radon seeds) and supplementary roentgen therapy. However, it has been found that this combined form of therapy offers no better results than does external irradiation alone.

The value of radiation therapy in these cases cannot be overestimated, as it often adds many years to the life of patients afflicted with such tumors. However, the ultimate results of treatment for malignant lymphomas in the pharynx are extremely disheartening and emphasize the fact that these tumors are worthy of a great deal more study in the future than they have received in the past.

DR. STANTON A. FRIEDBERG (closing): I would like to thank the discussors for their very illuminating additions to the subject.

It is gratifying to find that the experience of others corresponds to our own. Dr. Miller has observed 15 patients with pharyngeal lymphomas since 1950 and we have seen 16 patients in just about the same length of time. In grading these tumors it was his impression that the reticulum cell sarcoma represented the most malignant form. This was our feeling, too, until we noted that some of our longest survivors were in this group, an observation which contrasted rather markedly with the short survival of individuals whose tumors seemed to be quite mature histologically. Dr. Erich has also pointed out that one cannot make any predictions as to survival on the basis of the cell type.

If you want to have a little fun, spned some time going over slides of these tumors with your pathologist. Note the diagnosis on the original protocol. Then, in about a year, walk into his office with the same slides and again ask his opinion. He may propose an entirely different diagnosis as to the type-of lymphoma. We have had this experience with more than one pathologist and I'm sure that it is because some of these tumors are so difficult to interpret and because more than one cell type is frequently evident in the same patient.

Dr. Miller mentioned the difficulty in distinguishing between response to infection, hyperplasia and neoplasia. This can be quite baffling at times. Several of our patients were thought to have lymphoid hyperplasia due to infection but soon developed systemic manifestations of disseminated lymphoma.

We agree with Dr. Miller that large obstructing lesions call for excisional biopsy and we have followed this course in several of the patients described in this series.

In reply to Dr. Erich's discussion regarding the various types of lymphoma, it would seem that this is a matter of the pathologist's training and his preceptor's particular concept of the origin of these tumors. The contrast in the percentages of the different types of lymphomas represented in different authors' series would seem to indicate that interpretation and designation vary widely.

In our series the age span ranged from 6 to 96 years. The latter patient, a male, had never been in a hospital during his life until he developed respiratory obstruction from a huge tonsillar lymphosarcoma (Case 11).

The giant follicle type of lymphoma does have the best prognosis, as mentioned by Dr. Erich, but many of these eventually undergo transition to another form and the patients die of their disease. Dr. Erich also mentioned that those patients with reticulum cell sarcoma die sooner than those with other forms. I can only repeat that our longest survivor to date has been in that group. Unfortunately the disease is ultimately fatal, no matter what its form.

I should like to thank the discussors, as well as the audience, for their interest.

# THE ROLE OF RHINOLOGY IN PITUITARY SURGERY

OSCAR HIRSCH, M.D. (by invitation)

BOSTON, MASS,

It is 50 years ago, almost to the day, that the first transsphenoidal operation was performed on May 23, 1907. One year previously the idea of operating on the pituitary was considered fantastic. But pituitary tumors existed and were diagnosed. Their treatment consisted of trepanation of the skull and decompression. About a dozen operations were performed by Horsley in 1904,1 using the cranial method, but 40 per cent of the patients died and the rest remained crippled. The first transsphenoidal operation was performed by the surgeon Schloffer2 by way of temporary displacement of the external nose. When I witnessed such an operation by Eiselsberg it occurred to me that this operation could be done by a rhinologist with less mutilation outside and inside the nose and also with less risk. At that time there happened to be a patient on the ward of the Department of Neurology in Vienna who had lost his eyesight and was in a desperate condition. I suggested an endonasal exploratory operation on this patient to the Chief of the Department, Dr. von Wagner-Jauregg. When it came to the operation I used the ethmoidal access3 to the sphenoidal cavity. I found a cystic tumor, the patient fully regained his sight. From this time on I was entrusted with the operations on pituitary tumors in the Allgemeine Krankenhaus of Vienna. In all other cases I used the septal<sup>4</sup> method. By submucous resection of the septum, cartilage and bone were removed. It was then possible to spread the flaps to the width of both nasal cavities and reach the anterior walls of the sphenoid and expose the entire width of both sphenoidal cavities. They were pierced at the thinnest point and from this breach the walls of the sphenoid were removed by punches. The enlarged sella became visible. The operation is carried out in a newly created, wide tunnel which is separated from the nasal cavities by the flaps, thus restricting possible infection. In some cases the sella had to be opened by chisel, in others defects in the floor of the sella were found from which the bony sella was removed. At this point the instruments were freshly sterlized, the operating table was again covered with sterile linen. The dura was incised and excised and from this defect the tumor was removed by curette and suction. This method of suction, which is now common in surgery, was used by me instead of the method which was prevalent at that time, namely, sponging the operative field with gauze strips. I felt that this method (i.e., suction) would prevent infection of the tumor. This method of suction also proved helpful postoperatively in cases of infection of the tumor. It was my impression that I was able to cure beginning meningeal symptoms due to infection of the tumor. Even now I do not rely solely on antibiotics when the first symptoms of meningitis appear, but I use suction in connection with the antibiotics.

After I began to use the septal method the mortality rate in pituitary tumors decreased.

There was still another factor which contributed to the greater safety of the operation. I operated upon the first 20 cases of pituitary tumor in the out-patients' section of the ear department. The patients were lying on the same ward as did patients who had suppurative diseases. When I could transfer patients for operations to the clean operating room of the eye department the incidence of infection decreased to 5 per cent and remained so up to the antibiotic era when it decreased to one loss among 75, i.e., 1.3 per cent.<sup>5</sup>

The rationale of the first transsphenoidal operation performed by Schloffer<sup>6</sup> was different from that of my own. To Schloffer's mind the risk of the operation was a cerebrospinal rhinorrhea; this did not keep him from operating, because in skull injuries he found that infection developed in only 13 per cent of the cases. That is why he ventured to perform the operation. I based the endonasal operation on the anatomical relation of the dura and pia-arachnoid. The pituitary is covered by dura only as far as the diaphragm.<sup>7</sup> The operation on the pituitary is therefore extradural. This anatomy pertains in cases of pituitary tumors to the lower segment<sup>5</sup> of the pituitary tumor which is the only segment in the field of operation. If the tumor expands into the cranial cavity the upper pole of the tumor becomes covered by the optic chiasm and by the circle of Willis.

Operative interference with this structure is, of course, hazardous and has to be strictly avoided. That brings us to the limitation of the operation.

From the operative standpoint we can divide all pituitary tumors into three categories:

- 1) Supradiaphragmatic tumors. These lie exclusively above the diaphragm within the cranial cavity, are real brain tumors and are not amenable to transphenoidal operation. They are recognized in x-ray by a normal sella.
- 2) In this category are the intrasellar tumors which develop within the sella and expand the sella exclusively or mainly toward the sphenoidal cavity; they are recognized in x-ray by the enlarged sella, the entrance of the sella remaining but little changed. Since the tumors do not expand into the cranial cavity they do not interfere with the optic nerves or chiasm and do not cause visual disturbances. They are found mainly in acromegaly.
- 3) In the third category are the intracranial-sellar tumors, the most frequent we have to deal with. They grow in both directions, expand the sella towards the sphenoid and grow into the cranial cavity, interfering with the optic pathways. They are recognized in x-ray by an enlarged sella, by changes of the entrance of the sella and by characteristic visual disturbances. These tumors can be solid or cystic, benign or clinically malignant due to their unlimited growth. Only the segment of an intracranial-sellar tumor which is within the enlarged sella is accessible and can be removed.

If we can not remove the whole tumor by the transsphenoidal method, should we look for another operative method which can achieve this goal? My answer is: there does not exist an operative method which can remove an intracranial sellar tumor in its entirety without endangering the patient's life. Exceptions exist. What we can achieve by the transsphenoidal operation is to relieve the optic pathways of their strangulation by the circle of Willis,<sup>7</sup> to promote their recovery and by that the improvement of vision. If nothing else is done the tumor remnant will grow again. Having experienced such incidents in the first patients upon whom I operated, I applied

radium to the surface of the tumor remnant.<sup>7</sup> It took nearly ten years before I found a satisfactory method of application of radium to the surface of the tumor and the adequate dosage.

The first operation which I performed was in 1910, the first trial with radium in 1911, and the final method was developed only in 1920. It took another ten years before it was possible for me to gather sufficient data<sup>5,8</sup> on the duration of freedom from symptoms, especially of visual ones, after combined surgical and radium treatment. For the purpose of the following report a patient was considered improved if his vision was restored to normal or if it became better or if further deterioration of his vision was prevented. He was considered not improved if his vision continued to deteriorate after operation.

In 1937 (the end of the pre-antibiotic era) the number of patients who had been operated upon for pituitary tumors and treated postoperatively by radium application was 277.<sup>7</sup>

The case mortality was 5.4 per cent. The follow-up period for the 262 survivors was 19 years.

Of the 262 postoperative survivors 140 were operated upon from 5 to 19 years before the date of the review; 95 of them, i.e., 68 per cent, showed lasting improvement for this period of time.<sup>7</sup>

Concerning 26 patients who lived for from  $19\frac{1}{2}$  to 35 years after operation, I succeeded in obtaining information despite the difficulties following World War II. Twenty-one of this group who were operated upon because of visual disturbances showed lasting improvement from  $19\frac{1}{2}$  to 35 years.<sup>5</sup>

During the antibiotic era from 1944 to January 1, 1957, I operated upon 75 patients. I lost one patient in connection with the operation.<sup>5</sup>

Of these 75 patients there were 74 postoperative survivors, 12 died within the first four postoperative years of rapid growing tumors, 27 are less than five years after operation and are not considered in computing lasting results. Thirty-five patients are living or lived

over five years, 24 of them with lasting improvement, i.e., 68.6 per cent.

My intention is to stimulate the rhinologists in this interesting field of surgery which borders on several other fields of medicine.

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## DISCUSSION

Dr. J. H. Maxwell: Dr. Hirsch has made a monumental contribution to the treatment of pituitary gland tumors. The record of his success in the treatment of really a large number of these lesions is amazing. He has demonstrated conclusively that the transsphenoidal approach to a pituitary tumor is less hazardous than the frontal intracranial procedure. Dr. Hirsch's success in the surgical management of these tumors has demanded an astute ability to select cases properly and a refined surgical skill. The transseptal technique employed by Dr. Hirsch should present no insurmountable difficulties to one experienced in endonasal and sinus surgery. However, in my opinion, it is not an operation to be undertaken lightly or one to be delegated to a member of the resident staff possessing average ability. My personal experience with this operation is minimal as compared to that of Dr. Hirsch, but I have performed these operations on infrequent occasions during the past twenty or more year, and I still experience a thrill of apprehension when I drive a chisel through the posterior wall of the sphenoid sinus. The trauma to the surgeon

and the danger to the patient can be minimized if the patient has been thoroughly studied and prepared for the operation.

At the University of Michigan Hospital, as in many other large clinics, patients with suspected pituitary tumors are admitted to the Department of Neurological Surgery. Many but not all of these are referred to the Department of Otolaryngology for examinaion. The neurological surgeons in our institution are thoroughly acquainted with the trans-sphenoidal operation and its distinct advantages in selected cases. We all agree that the best form of treatment is that which achieves the desired result with the lowest mortality rate.

At the present time radiation therapy is the primary procedure of choice and is employed whenever it can be done safely. Even with an enlarged sella and bitemporal hemianopsia it is considered worthy of trial. In such a case an operation is performed if the visual fields do not improve. If, however, there is also a defect in the nasal fields, it is felt that irradiation is contra-indicated. The post-radiation edema might destroy the remaining useful vision.

Prior to any operation for pituitary tumor, but particularly in the patient with a normal sized sella turcica and bitemporal hemianopsia with associated nasal field defect, bilateral carotid arteriograms and pneumo-encephalograms should be made. Thus the size and type of lesion causing the dysfunction may be determined. Suprasellar aneurisms, meningiomas, myelomeningoceles, and chiasmal gliomas may be relatively well diagnosed by these methods.

I wish to emphasize the importance of true lateral radiographs of excellent quality in determining the size of the sella and the integrity of the clinoids. Also lateral planograms have been of value on several occasions by demonstrating destruction of the floor of the sella.

It appeals to me that the ideal patient for the transsphenoidal approach to a pituitary tumor is one who has an enlarged sella and radiographic evidence of encroachment on the sphenoid sinus by the tumor. This approach is practically a necessity in certain patients with rapidly increasing loss of vision and severe pituitary dysfunction making the intracranial approach even more hazardous. In our co-operative efforts with the neurological surgeons this group of patients has been operated upon by us. Except for those with rapidly failing vision and extensive visual field defects, most of them were patients who had been irradiated previously.

The patients whom we think are not candidates for the trans-sphenoidal operation are thase who have a normal sized sella and no evidence of encroachment on the sphenoid sinus. The presence of papilloedema or neurological deficits other than visual field defects are considered contraindications to this procedure. Also, if arteriography and pneumo-encephalography demonstrate a large suprasellar mass, it is probably best approached through a frontal craniotomy. Any radiographic evidence of suprasellar calcification suggests a lesion other than a pituitary adenoma.

In trans-sphenoidal operations on the pituitary as well as in the frontal craniotomy approach, hydrocortisone should be given pre- and post-operatively. Many neurological surgeons are of the opinion that the use of hydrocortisone has been more important than the antibiotics in reducing the morbidity and mortality rates in operations on the pituitary gland. A patient exposed to a major surgical operation of any kind is capable of surviving it only by virtue of that fact that his pituitary makes increased ACTH under stress and stimulates his adrenals to put out a large amount of extra hydrocortisone to tide him over. In the case of pituitary gland operations it is likely that the pituitary response will either be absent or inadequate and that his own adrenals will not be able to supply the needed quantity of hydro-

cortisone. Thus by administering hydrocortisone for forty-eight hours before operation and continuing it for a week post-operatively or longer if necessary, the dreaded complications of adrenal cortical failure can be prevented.

Dr. Shirley H. Baron: Mr. Chairman, Dr. Hirsch, Ladies and Gentlemen, I appreciate the opportunity of discussing Dr. Hirsch's presentation because, as Dr. Maxwell stated, his contribution really has been monumental.

I should like to make one case presentation, because by the use of Dr. Hirsch's technique in this patient a new method of visualization of a pituitary cyst was tried and a new form of supplementary irradiation (Cobalt) was used.

This was in a 53 year old Japanese female whose pituitary tumor was diagnosed by an ophthalmologist and referred to a neurosurgeon. The neurosurgeon did a craniotomy and found a pituitary cyst via the transfrontal approach; he found he could evacuate this only by means of a needle because it was below the chiasma. He did manage to take a biopsy. The right eye blindness improved after this procedure but six weeks later the blindness recurred and the case was then referred to us. The neurosurgeon and others in charge felt that not only decompression would be in order but also elimination of the cyst lining would be desirable to prevent re-accumulation of fluid. Supplementary irradiation was suggested.

The radiologist thought that an available cobalt bomb would be the type of radiation best suited, with an exact point source with homogeneous dissemination. The problem, of course, was the exact placing of the bomb in the center of the pituitary cyst. For this, the size of the cyst had to be determined. This was accomplished by direct injection with a radiopaque substance, pantopaque.

- (Slide) Dr. Hirsch's classical technique in exposing the pituitary cyst was used; a sterile spinal needle with syringe was inserted into the cyst, two cc of cyst contents were removed and two cc of pantopaque injected. You see here one view of the outlined cyst.
- (Slide) You can see it well in the lateral view. Once the size of the cyst was determined, the cobalt could be applied. An incision was made through the cyst sac, the contents evacuated and then the cobalt was inserted.
- (Slide) An x-ray taken on the operating table then showed the position of the cobalt to be too high. This was pulled down very easily by use of the wire which you see attached to the cobalt bomb.
  - Slide) Here you see the cobalt bomb right in the center of the cyst.
- (Slide) I don't think you can see this, a polyethylene tube for drainage, intended as a permanent drainage tube from the sella into the sphenoid.
- (Slide) And here is the same in another view. This patient's vision came back 100 per cent until 7 months later and blindness in the right eye recurred. I re-approached the sella through the same method as described by Dr. Hirsch. It was easy to separate the flaps. There was no sign of any cyst or any pathology in the sella. The cause of this recurrent blindness was not determined.

It is noteworthy that after each operation the patient went into "pituitary" shock, from lack of pituitary substance. The skilled care of the attending endocrinologist, a "must" in all uch cases, restored the endocrine balance each time.

One year later this patient became blind in the other eye. Why? Was the irradiation from the cobalt excessive? This question remains unanswered but does

not necessarily eliminate cobalt as a source of irradiation therapy when it is desired in pituitary disease. It has advantages over radon seed implantation, and perhaps needs re-evaluation of dosage.

We are grateful to you, Dr. Hirsch, for your technique, which has helped us with this and other patients. Thank you.

Dr. Robert C. McNaught: I have nothing to add except more commendation for bringing this before us and to stress that this operation is in the field of rhinology.

At Stanford we have done 15 or so of these procedures and now have so established ourselves in this school that the ophthalmologists are referring them directly to otolaryngology rather than neurosurgery. Even the Tumor Board sometimes refers a case.

Most recently one was a little trying because it was no for pathology of the pituitary. The Board asked us to remove a normal pituitary in a patient in an attempt to produce the effects of a complete adrenalectomy. We did this a week or so ago. The patient survived it. Well, it is more difficult when the posterior wall of the sphenoid is not thinned out by expanding tumor.

It is the second of those hypophysectomies that have been done on normal patients—just one other application of the technique.

Dr. Francis L. Weille: Mr. President, Members and Guests, Dr. Hirsch left out one extremely important point here, and I would say that this was most modest on his part. While his mortality is only about one per cent, that of the neurosurgeon is about 30 times greater. This was told to me by a member of the Albright group of the Massachusetts General Hospital. They get most of the pituitary tumor cases first in the endocrinology unit. They always want Dr. Hirsch to see the patient first and the neurosurgeons last. For this reason, the neurosurgeons are trying to learn Dr. Hirsch's technique and it seems to me, as a practical matter, that people like ourselves ought to try to emulate their example.

Another practical point: people who have acromegaly also have large frontal sinuses. When the surgeon makes a transfrontal approach he gets into a non-sterile field anyway by having to go through the frontal sinus.

Dr. Oscar Hirsch (closing): I would like to express my appreciation to Dr. Maxwell for discussing my paper and also to Dr. Weille and Dr. McNaught. It was with great satisfaction that I listened to their acknowledgement. It will facilitate to arouse the interest of the rhinologists in his field which borders on neurology, neurosurgery, endocrinology and ophthalmology. Rhinologists, connected with large and well-known hospitals, as Dr. Maxwell, can easily encourage the work in sphenoidal and pituitary surgery. I agree with Dr. Maxwell that the indication of the transsphenoidal operation in tumors with normal sella has to be made very carefully. These tumors belong with very few exceptions in the realm of the neurosurgeon. The administration of cortisone before and after the operation is of greater importance to the patients who have to undergo cranial operation because of greater blood loss and shock. In the transsphenoidal operation the administration of cortisone should be done with caution.

I know from personal information by Dr. McNaught and Heck that they have used the transsphenoidal operation successfully in patients with pituitary tumors.

It was a great pleasure and honor, Dr. Schall, to be invited and to be given the opportunity to stimulate my colleagues in this field.

# MEDICAL AND SURGICAL MISADVENTURES

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There is something very personal in the recitation of a misadventure, only to be related *in familia* or *in camera* as it were. Detailed presentation of 36 years of countless otolaryngologic experiences as bear telling, would require recitation of a voluminous literature. Moreover, the medicolegal gremlin strains its knowing ears and eyes for helpful clues to man's inhumanity to man. Advances in photography permit a vivid and realistic review of the sort of misadventures which the otolaryngologist may experience. Selected photographs, schematic drawings and charts enhance a presentation of a rather practical approach to otolaryngology. They reduce to a minimum the necessity of a detailed account of the mishaps and pitfalls which may occur in the practice of otolaryngology.

In accumulating cases from his own experience and those of 34 other distinguished consultants and specialists, Adolphe Abrahams¹ stated the basic philosophy of this type of reporting when he said: "On the one hand it demands almost superhuman courage to select material from his own humiliating experiences, and with the best intentions it is only human nature to develop amblyopia and deafness in respect to one's own deficiencies. On the other hand, the more comfortable method of enumerating the mistakes of others carries with it an unworthy sense of triumphant condemnation as well as the implication of personal infallibility."

In 1956, Arthur H. Douthwaite,<sup>5</sup> in the presentation of the Croonian Lectures stated, "Vanity, which is the most enduring and widespread of human passions, fortifies the mental censor to suppress the memory of our mistakes, thereby leading to a smugness of outlook which is unendearing. It is only by keeping a record of them that they are not lost. We can learn also from the mistakes of others; these

are less difficult to recall." It was apparent to him, as it has been to others, that "self-criticism is far more important than criticism of others, for, although we may learn by their mistakes, to criticize them directly or obliquely in the presence of colleagues or patients is surely the one unforgiveable sin." This followed Matthew Arnold's statement that "criticism is a disinterested endeavor to learn and propagate the best that is known and thought in the world."

# PITFALLS IN SPECIALIZATION

In his presentations on "Pitfalls in Medicine," Douthwaite found that "In tracing the causes of failure in our work it soon becomes apparent that the fault lies more with the physician or surgeon than with the patient or the obscurity of his disease." He learned that mistakes, largely due to vagaries of disease rather than to faulty approach by the physician, can be traced as a rule to unusual patterns of symptoms, less often to puzzling physical signs. On the other hand, the enduring value of diagnosis based on symptoms in the face of contradictory instrumental revelations is to be emphasized. It has been said that we should learn from the mistakes of others because none of us lives long enough to make them all ourselves. As Oscar Wilde stressed, "Experience is the name everyone gives to his mistakes."

We all share Douthwaite's belief that mistakes are inherent in the pursuit of a progressive science, and not to admit them spells death to any hope of advancement in learning. They are not, he holds, confined to the inexperienced, for "paradoxically though it may be, experience may hamper a physician in coming to a correct conclusion. He is tripped up, as it were, by the vast impedimenta of his knowledge, whereas his junior may see the goal clearly. Bias, produced by specialized knowledge, may play havoc with the physician's reputation. It disturbs at once the ability to assess the relative importance of all features of the diagnostic problem, which is the hallmark of the sound clinician."

Otolaryngology bears a kinship to each field of medicine. One of the great dangers of modern medicine, however, is overspecialization. Every specialist becomes so obsessed with his own special field that he disregards its relationship to the body as a whole. The oto-

laryngologist is primarily a physician, secondarily he is a specialist. Douthwaite expressed the same basic idea of Harris P. Mosher, <sup>12</sup> who wrote that "The strength of specialism is specialism. Paradoxically, its weakness is also specialism," in holding that "specialization without extensive knowledge of general medical and surgical diagnosis endangers efficiency." What still prevails, in effect, is the expression of Guillaume Dupuytren (1775-1835) that "Diagnosis holds first rank in our science and is the most difficult part of it, without an exact and precise diagnosis theory is always faulty and practice often incorrect."

# POTENTIALITIES FOR ERROR

In evaluating the challenging array of signs, symptoms, and symptom-complexes canfronting the otolaryngologist — headache, nasal blockage, dizziness, dysphagia, otalgia, hoarseness, aural or nasal discharge, cough, obstructive states of the upper and lower airway, sore throat, epistaxis, tinnitus, hearing loss, disturbances of facial, orbital or neck symmetry—pitfalls, mistakes, transgressions, accidents, and errors of omission and commission are at times either apparent or evident. Although generally speaking none of these signs or symptoms is in itself diagnostic, all of them require careful evaluation for an accurate diagnosis. Through this medium only is it possible to aid recovery, preserve function of a special sense organ, or save a life. How frequently we falter in this achievement was succinctly pointed out by an analysis made of 1000 consecutive autopsies by a Scandinavian group. This analysis revealed 67 completely faulty diagnoses and even a higher number of inaccurate assessments of the morbid processes during life. Douthwaite commented on this observation as an indication of the error-proneness of physicians and surgeons, and of consultant fallibility.

From the very beginning of the interrogation to the culmination of medical and surgical management of the patient, potential mishaps and pitfalls are numerous. Inasmuch as patients seeking the services of the otolaryngologist confront him with symptoms of a varied nature, definitive management entails a matter of well chosen words and carefully selected modalities. Since all of the special senses are situated in the anatomical areas for which we have prime responsibility, there is need to apply the total person concept. It is necessary

also to employ interviewing techniques and instrumental procedures that will reveal the correct diagnosis, if we are to preserve life and function with minimal emotional upheaval and physical trauma.

# THE INTERVIEW

The prevention of iatrogenetic states (physician created) may be anticipated if the emotional factors in illness are recognized and treated. These are engendered by what one says or does not say; by what one does or does not do. There are those physicians whose own psychological composition prevents them from being good listeners. It is a fact that they are so troubled themselves that they cannot listen to the problems of others. So preoccupied are they that it amounts to detached listening when their thoughts are not even concerned with the patient. Others, based on hearsay or an isolated experience, may act prejudicially even before the patient is interviewed. Prejudice is said to be a great time saver for it spares one the necessity of getting at the facts.

The thorny and uneven diagnostic path is replete with errorstrewn detours. It is sometimes possible for a diagnostic signal to be observed at the moment of the patient's entry into the office. However, as was so aptly expressed by Jacob Mendes DaCosta (1833-1900), "Diagnosis by intuition is a rapid method of reaching a wrong conclusion." In many instances the preliminary interrogation may reveal the fundamental mistake on the part of the interrogator when he displays imperfect handling of the patient due to bad manners, tactlessness, or impatience. Doubt is often dispelled by permitting a patient to tell his complete story, however lengthy, without interruption, disapproval, or moralization. Interviewing is a problem of communication in which listening (the manner of the interrogator), observing (visual appraisal), and eliciting (recognition of signposts) are paramount factors. All of this requires tact and patience to decide between useful information and what has been described as "garrulous imbecility," and recently as the "Baron Munchausen syndrome," named for that legendary character given to fantastic exaggeration. Frustrating and uncooperative as this type of patient may seem in working toward a common goal of diagnosis, lurking somewhere behind this behavioral screen may be that condition requiring recognition and care, and only amenable to therapy if the process is brought

to light at the time of the interview. Some of these patients may be openly hostile and skeptical. At this juncture the physician's own emotional content requires understanding acceptance of the challenge.

No one would disagree with Douthwaite's opinion that "The more experienced physicians devote a greater time to the taking of the history than to the physical examination. Failure to do so leads to more mistakes than any other error of approach. But even this must be guided by experience, which alone allows us to sift the relevant from the irrelevant. Such a process cannot be taught but must be achieved afresh by each succeeding generation." Here it is that the "gefühl symptome," acquired by clinical experience, wherein common sense or "that part of our knowledge for which we have had no formal training" plays the important role. In interpreting the expression, "do not allow your education to interfere with your learning," it should be emphasized that the myopia of riding pet theories or hobbies frequently jeopardizes satisfactory end-results. Risks of failure are encouraged by conclusions based on inadequate case material. At times one becomes "sensitized" to previous experiences, and being guided accordingly, acquires that feeling of "traditional expectation" in assuming that the very next patient and all others are in the same general classification and will respond in a like manner.

# THE MANNER OF THE EXAMINER

Recently popularized recommendations to "see your doctor," have a "cancer prevention checkup" and a "periodic examination" point out the likelihood for erroneous decisions in this group. Beware of the patient who has no complaints but just seeks a routine checkup. He may be the very one with organic change. Thirty years ago Francis W. Peabody<sup>13</sup> emphasized the inherent dangers in the care of patients who have "nothing the matter with them." Although his classic on "The Care of the Patient" was delivered to the students of Harvard Medical School, it bears repetitious reading by those of experience. It reminds one that the doldrums of despair which attend the interview of the so-called "E.N.T. essentially negative" or "not remarkable" patient, or the omnipresent headache, tinnitus, or postnasal drip complaint may be likened to: "the trees which prevent a view of the forest." A very human reaction to such commonplace complaints, according to Douthwaite, is to truncate the history-taking

in despair and to proceed with the examination. Unfortunately, so many diseases present no physical sign in their early stages that diagnosis may well escape us through impatience. These patients are the very ones for which Francis J. Braceland's² suggested leading questions such as "Just how concerned are you and what do you (the patient) think it (the symptom or sign) is doing to you?" The story then may begin to unfold.

The emotional aspects of disease have received prominent "billing" in reference to all fields of medicine. There are those physicians who belittle the role played by emotions, or exclude this factor entirely, and others who overemphasize it. One must learn not to exclude a disease on a priori grounds of station in life, marital status, "he comes from a good family," or "I knew him as a child; he's always been unstable." There seems to be no sharp delineation between the emotional and physical aspects of the patient. In otolaryngology, the fallacy is established in considering an incidental observation as the cause of an unrelated condition. It is here, too, that an exaggeration of the negligible, or the inability to recognize the limits of the normal, play an important part in the production of positive errors.

The clinician who ascribes the complaints of a patient to an emotional disorder assumes a grave responsibility. Errors in diagnosis in this direction can threaten the patient's life or, at best, deny him the benefit of treatment, which more adequate diagnostic procedures would make available to him. On the other hand, insistence by the clinician of a physical cause, when the primary one is emotional, can prolong the disease and further solidify the patient's objection to psychiatric evaluation. Referal of the patient for a diagnostic psychiatric interview may clarify the issue in both instances, provided the psychiatrist brings to bear the tools of his specialty, and is, according to D. L. Faucet, humble enough to say occasionally, "I don't know."

# TECHNIQUE OF EXAMINATION

The technique of examination of the head and neck areas is too well known to require elucidation. However, it is well to point out that pitfalls await those who overwhelm the patient with the entire gamut of tests known to the profession and to the physician, who

examines perfunctorily and settles for one area or one sign of his particular interest. There is the danger of incompleteness, because the diagnosis appears firmly established. There is also great danger in a sudden inspiration, that flash of insight which Douthwaite claims "sweeps away our difficulties and resolves our problems." The visual recognition of disease which is responsible for the majority of snap diagnoses is losing ground as attention becomes focused on the minutiae of the ancillary sciences. This has been termed "specialistic proneness." It involves dwelling upon certain features of personal interest and the undue tendency to presume the importance of some positive discovery or success in management of another case, especially when all else seems "negative." In this manner the diagnostic field is thrown out of focus because the clinician cannot forget his previous success, thus warping his judgment. The overlooking of another condition, perhaps even a more serious one, while being attracted to the less serious one, is hazardous. In such an instance, one may assume that the structural departure from the normal is necessarily the cause of the illness under investigation. Merrily thus begins the physician's chase after false "diagnostic gods" and often the beginning of the patient's iatrogenic shopping tour.

Skill in employing instruments and other God-given gifts is basic to good otolaryngology as it is to other fields of medicine and surgery. The lacking of same, failing to utilize them correctly, or not doing so at all may be calamitous. It is best illustrated by the following "play" on letters and words:

|   | 1 | S EEING       | ) <b>.</b> |
|---|---|---------------|------------|
| N |   | K nowing      | L AZY      |
| 0 | 1 | I NTERPRETING | A PATHETIC |
| T |   | L ooking      | CARELESS   |
|   |   | L istening    | KNAVISH    |

Physical examinations not only require skill; they demand time. The preoccupied, harassed, overworked, discouraged, fatigued oto-laryngologist finds the misadventures in direct proportion to such stresses, as well as those created by too little time and too many outside interests. There is an easy way out of the laborious routine in an effort to make short-cuts by subordination of the physician's examination, by the employment of extraclinical methods or labor saving devices,

snap diagnoses, or by the use of pseudodiagnostic terms such as idiopathic, stress reaction, viral, focal infection, circulatory episode, and many others.

Admittedly, there are times when an absolute diagnosis is rapidly and unequivocably obtained by means of some laboratory investigation. The report itself may bias or even distort the clinician's thinking, and in addition, clerical errors may occur. This may not even be the correct report. A laboratory test is not a substitute for clinical examination, or necessarily acceptable as the negation of a clinical opinion. This holds for clinical reports as well, where the blind or unquestioned acceptance of another's authority may encourage misadventure. Since no one should be offended by the scrutiny of his observations, difference of opinion is legitimate.

#### DIAGNOSTIC ERRORS

A long but partial list of diagnostic mistakes points accusing fingers at unrecorded errors of omission and commission. 1) The ulcer in the tonsillar area antibiotically treated until malignant disease was apparent even to the layman; the ulcer hidden behind the posterior pillar, residing in the larynx, or in the nasopharynx, as the overlooked cause of an earache, for which cerumen was washed out or ear drops prescribed. 2) The "stuffy nose" for which a douche or nose drops were recommended, when actually a neoplasm was the etiological factor; the same cause so frequently underlying a nosebleed previously diagnosed as simple epistaxis. 3) The headache, which so frequently results in a diagnostic and therapeutic merry-go-round for the patient, finally revealed as an osteoma of the frontal sinus. 4) The otic discharge treated as so-called moist eczema of the canal or a benign suppuration of the middle ear, complacently carried along on antibiotic management when close inspection of the tympanic membrane would have revealed an attic perforation associated with cholesteatoma and possible intracranial complications, or even the presence of a malignant growth. 5) The cough, which is viewed as the favorite hunting ground for countless remedial agents and diagnoses, only to discover an intratracheal neoplasm. 6) The discordant or hoarse voice treated with vocal rest and steam inhalations, when an early indirect laryngoscopy might have disclosed the presence of a neoplasm and prevented costly delay in proper assessment of the true state of

affairs; the same applies to the failure to obtain a chest film or a sputum examination in a tuberculous laryngitis. 7) Otalgia, sought for in the ear itself, when the cause was remote to this area, namely, an ulcerating tumor mass in the larvnx. 8) The "lump in the neck" which always involves a diagnostic marathon, the primary lesion of a malignant growth often being present in the pharynx, or in the larynx, or in the nasopharynx. 9) A lesion in the nasopharynx which commonly causes eye discomfort of patients; multiple corrections for errors in refraction finally and obviously become manifest at the sign of ocular paralysis (third and sixth) when a neoplasm invades the cranial base and its foramina. 10) The much abused diagnostic tool, globus hystericus, which leads to mortification of both the physician and the patient when it turns out to be postcricoid carcinoma. 11) Facial pain for which no obvious identifying signs can be detected; it is often judged to be in the range between a hysterical manifestation and a neoplasm of the maxillary sinus eventuating in an acoustic neurinoma whose size finally produces blindness; the same type of lesion causing vertigo, often is treated for a gastrointestinal disorder and the internal ear completely ignored.

#### PRACTICES WHICH CREATE ANXIETY

Too often does the physician assume that all symptoms must be explained on the basis of an organic or structural abnormality. Modern day information via radio, the press, the motion picture and television is producing a generation of disease-oriented people who have all of the classic symptoms; all the physician has to do is to fill in a few gaps, wantonly aided and abetted by a battery of laboratory tests, all very impersonal, to be sure. In themselves these many procedures, conducted under diverse environmental circumstances by personnel not always given to the simple devices of explanation, may arouse anxieties or focus attention on complaints. The patient may be made sicker than he really is, because the dividing line between the emotional and the physical is somewhat uncertain.

There are many other practices which are alarming to the patient in the course of arriving at a diagnosis. The distraught physician's look of concern (which in so many instances has nothing to do with the case) can precipitate in the patient acute anxiety. The physician's look of surprise or concern, to say nothing of the impressive display

of armamentarium, or the silent walk to a dark room, are traumatic, to say the least. It is a serious error to say too much too soon. The naming of a disease or a condition may be fraught with disaster. It creates invalidism and aggravates existing disease. The premature or pontifical utterances that "these things can cause or become —" and then proceed to dole out what has been given the descriptive appellation of the "bouquet of academic American beauties of differential diagnosis," will undoubtedly set in motion irreversible emotional upheavals. "Floundering in the morass of differential diagnosis," states Douthwaite, "to consider at length the diagnostic possibilities, is academically interesting but laudable only if at the end one commits oneself to a firm opinion." Classically apropos at this point was the aphorism of Oliver Wendell Holmes who said, "Keep your doubts to yourself but give the patient the benefit of your experience."

How much and how to tell have been subjects of numerous contributions to the literature. At times one even asks "Whom to tell?" Undoubtedly it all depends upon what needs to be told, and upon the patient's ability to understand. The clinician who creates iatrogenic diseases or neuroses is likely to be over-anxious, over-conscientious, not certain of himself, and inclined to hedge. He dislikes taking responsibility for a categorical reassurance of his patient and may prescribe "just a little x-drug for safety's sake," or for the same reason orders some laboratory procedure. Although he concedes he finds nothing wrong, he adds, "of course, one cannot be absolutely sure." Other professional types consist of the over-cautious physician with a reputation of being an alarmist; or his cheery breezy opposite, regarded by Abrahams<sup>1</sup> as congenitally incapable of ever imagining the existence of a grave disease, for whom a slap on the back and a guffaw is his way of excusing all of his inexperience, his inadequacies, his indecisions, and even his ignorance.

Ignorance on the part of the clinician is always relative. It may be gross (like overlooking cerumen in the ears, an attic perforation, or the presence of obvious tumors or ulcers), moderate (such as not being acquainted with certain symptoms or physical signs), and then there is condonable ignorance (where he lacks acquaintance or experience with comparatively rare syndromes or diseases). It is of interest also to recognize the same prototypes among physicians are manifest in reference to prognosis. Saying too much, too soon; the

manner of telling, the facial expression, and the mien of the interrogator figure importantly.

#### THERAPEUTIC MISADVENTURES

Too little concern is usually expressed over the routine "come tomorrow" repeat visit to the physician's office. Anxiety and invalidism are perpetuated by this practice, because it focuses attention of the patient on his complaint and has him thinking he is sicker than he really is. The indiscriminate, repetitious and continuous employment of drugs has a similar effect. The use of nose drops is a typical example of a pernicious habit that becomes a crutch or a dependent addiction to which a physician notoriously contributes. Inflation of the eustachian tube, just for the sake of doing something in irreversible disease of the middle or inner ear, is a flagrant violation of the patient's trust and does not comply with rational therapy. Repeated irrigations of the nose and sinuses because the patient demands or encourages them are likewise practices not to be condoned. The patient's selfmade diagnoses and his requests for nasal packs or irrigations weakens, rather than strengthens, the patient's confidence in his physician. The writing for a refill of the patient's favorite prescription certainly does little to elevate the standing of the physician and creates that "dependency strain" of Americans who carry conveniently and habitually a pocket atomizer, a nasal inhaler, nose drops, and the not by any means innocuous, antibiotic throat lozenges. The aphorism, "The physician who treats himself has a fool for a patient," significantly applies to a large percentage of our lay population, who can be "sold" anything if presented in an interesting display, or if championed by a popular radio or television star.

Some time ago, a clinician, concerned with the indiscriminate employment of antibiotics, remarked "these bacteria are not going to take this lying down." It has been our feeling that while we have eliminated the "capitalistic" class of organisms in many instances, we have encouraged the "proletariat." This thought is shared by Douthwaite who stated, "Generations of bacteria, hitherto unknown, with ever-increasing resistance to our drugs, are threatening to overwhelm the human race, which at the moment is only one step ahead in ingenuity to thwart the infinite adaptability of the microbial kingdom." Granted that antimicrobials have increased the therapeutic index of

safety, they are no substitute for an incorrect etiologic and clinical diagnosis, lack of familiarity with the course of the disease, failure to evacuate a suppurative focus or to follow a proper surgical technique.

#### SURGICAL MISADVENTURES

Surgical misadventures are in direct proportion to diagnostic errors, failures in discussing fully with the patient the many facets of the contemplated procedure, and are compounded by the pitfalls provided by incorrect preoperative preparation, the mishaps which may be entailed in local analgesics or general anesthesia, and those involving faulty or improper instrumentarium. Other factors include the surgical technique itself, postoperative mismanagement, the possible calamitous reactions from the administration of blood and blood substitutes, and the many other errors involving misconceptions, misinterpretations, miscomputations, misjudgments, misstatements, misinformation, human frailties, clerical errors, wrong specimens or x-rays, wrong side, and numerous other blunders, some bordering on plain absurdities. Each surgeon can recall and illustrate instances of misadventure. In the majority of these situations, the human equation was paramount; prevention was possible.

It is essential to view all of these possibilities in relation to the concerned situations or surgical procedures. Operations are divided into the following types: 1) emergency, such as a tracheotomy, in which time is of essence; 2) urgent, for example in hemorrhage when promptness prevails, warding off catastrophe; 3) necessary, as for benign growths, less urgent perhaps, but indicated by the presence of a lesion; 4) elective, in the presence of a pathologic process, such as a deviated nasal septum, but without certainty that all symptoms will be relieved by its corrective intervention; 5) doubtful, when longstanding septal deformities render the indications rather dubious, and 6) wishful, i.e., performed on patients who have no objective disease but who present symptoms presumably justifying an operation based on: a) a "hunch" or intuitive feeling, b) pressure by the patient or his family, or c) because of the surgeon's own intolerance of inactivity, which some believe to be the causative factor in many so-called explorations. In the last three types of surgical indications, the personality of the patient assumes a prominent role in the results of the operation. Furthermore, in creating invalidism and aggravating existing disease, surgical procedures have no peer. The fact that a patient submits willingly to operation does not justify the need for same; it is, in fact, more often evidence against it.

The same techniques of observing and eliciting are of importance in preoperative discussions with the patient. His previous experiences with physicians, drugs, and operations, his attitudes and his expectations are all of significance. The emotional preparation of the patient is important if the surgery to be performed is to prove successful. If the laryngectomized subject has not been prepared for voice deprivation and his immediate problem of swallowing through a feeding tube, if the adenotonsillectomized child has not been apprised of the reasons for and the resultant discomfiture of swallowing, if the otosclerotic has not been readied for the improvement in hearing or even its further deterioration, catastrophic emotional upheavals may follow. Cosmetic surgery of the nose, face and ears at times presents psychiatric hazards because patients often are neurotically motivated. The selection of patients for operations, especially for elective procedures, must take into consideration the expressions of the patient, his motives and his goals. These factors may reveal the patient's emotional content, thus warding off potential psychotics or litigants.

In coping with emergencies, the need for action is in itself a challenge to the thinking and coordinative processes of the otolaryngologist. A thoughtful clinician can convert an emergency procedure into an elective one by means of intubation, aspiration, and supplying blood. It is a source of debate as to whether hemorrhage or obstruction to the airway is the most difficult emergency to combat. The vivid recollection of the more recent experience will be classed as the outstanding one. Quick thinking, dexterity, and an air of equanimity in the face of odds play the leading roles if morbidity is to be minimized and mortality reduced. In these situations one is likely to find the inefficiency of personnel, the poor planning of physical details, and the lack of effectiveness of a system or organization, heretofore thought to be flawless, revealed in all of its stark reality.

#### BLOOD TRANSFUSION INCIDENTS

Blood transfusions are such a commonplace adjuvant of medical and surgical therapy that an estimated 3,500,000 procedures are per-

formed in the United States each year. The preventable, untoward reactions are of general interest because it has been estimated one death occurs in every 1000 to 3000 blood transfusions. The likely misadventure lies in the donor aspect (hepatitis or syphilis), the laboratory (clerical errors, inaccurate blood-grouping and cross matching, switching of labels or mislabeling of bottles), and finally in the hospital itself (wrong blood administered due to failure to check accurately and blood is warmed and thereby hemolyzed).

There are 20 to 25 blood groups known, in addition to those commonly typed, viz., A-B-O groups and Rh-HR types are only two of those known. Only in exceptional instances is it practical to check for other groups and besides, such typing is available in only a few laboratories with facilities and technicians for special cross matching methods as the conglutination, the antiglobulin and the proteolytic enzyme tests. Cross matching tests must be done routinely by the conglutination and the agglutination methods. Moreover, for recipients who may have been sensitized by previous transfusions or pregnancies, the antiglobulin cross-matching test must be carried out in order to detect incompatibilities with respect to blood factors such as Kell, Duffy, and Kidd.

#### ANESTHETIC HAZARDS

Anesthesia has left in its wake a long list of recorded and unrecorded deaths. Recently, a Committee of the Association of Anesthetists (of the British Isles) stated, "If the anesthetic or surgical misadventure had not occurred complete recovery would have been highly probable in 46.9 per cent (of anesthetic deaths)." In reference to locally performed procedures, the need for the same principles that govern general anesthesia should prevail. Mishaps develop in the failure to prevent, recognize, and treat the untoward reactions early, and in erroneously substituting topical agents for injectable material. The environment, office or hospital, must have the same resuscitative means and careful observation of the patient, his blood pressure and his pulse available. Patients are frequently over-sedated and the dose of the analgesic agent improperly controlled. Timing, in spreading its use over a longer period, is not observed. The unknown factors in topical anesthesia are concerned with the lack of uniformity in nebularization; the failure to realize the blood level concentration is

increased by absorption of the drugs via the esophagus and stomach. This is true also of applicator techniques in which the cotton swab is saturated with medicated solution.

The general anesthetic problem develops from a number of fundamental failures in the evaluation of the patient. First, there are the failures to appreciate the significance of visceral disease, including coronary disease, incipient cardiac failure, and nutrition in the geriatric patient. Over-sedation in the aged is also an important factor. In such instances, the patient exhibits signs of intoxication and restlessness. Additional medication given to quiet them really then causes unfavorable reactions. Secondly, there is the failure to appreciate the major surgical risk from the standpoint of the disorders of physiologic functions, not so much as to how much tissue is removed but the site and conditions under which it is removed.

Thirdly, the anesthesia frequently is more hazardous than the surgical procedure justifies. Fourthly, the failure to utilize regional anesthesia, when general anesthesia is being used, in order to protect the patient against harmful reflexes (for example, the carotid sinus reflex). The fifth failure concerns postoperative care when the position of the patient, his blood pressure and pulse are not even recorded, if observed at all (tonsil bleeding, for example). The sixth and final area of failure is that concerned with the importance of being prepared for blood loss. The hematocrit and hemoglobin estimation are counted on too importantly, when it tells only the story of what is in a cubic centimeter of blood but not the true picture of the total blood volume.

#### THE SURGICAL RISK PATIENT

Now that surgery of magnitude can be performed, the history and physical examination loom importantly. The patient about whose physical and emotional state we are adequately forewarned lives; the patient whose medical evaluation and clearance has not been established does so only by the grace of God. It is difficult and perhaps not even valid to supply a statistical analysis of isolated cases which represent mortality and morbidity in the operating room. Max Sadove and his associate, Herbert Natof of the University of Illinois, studied thirty-one reviews comprising 735 of such case reports. The incidence

of pulmonary and cardiac disease in this group runs higher than in the normal surgical group (in 1942 to 1946 over 45 per cent of patients were so classified).

It is the state of the so-called asymptomatic cardiac patient that is frequently ignored. One never knows just when he will become a candidate for an acute cardiac episode. One of the problems in assessing the patient as a potential risk is the fact that clinicians differ as to what factors in a person render him a good risk. One clinician may feel that a history of two previous infarcts places the patient in jeopardy, whereas another reasons that since the patient had no episode in the past year he can undergo surgery. It is significant that the mortality rate for persons in the 50 to 70 years age group has been found to be higher than in persons over 70 years of age. Even the almost moribund patients of the over 70 group did better. Why? The fact that the surgical "team" becomes more cautious undoubtedly accounts for it.

Finally, about the over-publicized cardiac arrest, an entity well described a century ago. Why the sudden apparent upsurge? Patients subjected to operation today would not even have been considered for surgery ten years ago. Major surgical procedures confer upon the patient the privilege of circulatory collapse and/or cardiac arrest. This, however, does not mitigate against the need for adequate preparation. In prevention, the *sine qua non* of success is the maintenance of adequate respiration and circulation.

#### THE SURGICAL TECHNIQUE

The technique of surgery is based on correct diagnosis, training, skill and experience. Acquisition of this purely by listening, reading or the purchase of instrumentarium is no assurance of success. Appropriately expressed by Frederick Coller, "surgery is not a technique, it is a process of thinking." Nor is avarice or knavishness among the prerequisites. Over ten million surgical procedures are performed in the United States each year. It is estimated that generalists and other nonsurgical specialists perform about four times as many operations as do surgeons. Specialists in surgery are believed to do about half of the number in the latter group. Members of the profession frequently have wondered just how many of the operations were correctly carried out, if at all indicated.

If the fundamentals of anatomy and pathology are observed and common sense and dexterity are employed, surgery promises uneventful recovery in the large majority of patients. Temporal bone, maxillofacial and neck surgery were never more competently taught and performed. Yet their popularization has brought about a toll of complications, less likely encountered by those more qualified. The same may be said of the many other anatomical areas in the surgical domain of the otolaryngologist. Integrity for the surgeon is imperative. It is also not unreasonable to assume that a wholesome regard for people is as important to the surgeon as is his respect for tissues, for as Hippocrates said, "To heal even an eye, one must heal the whole body."

#### SUMMARY

The otolaryngologist is confronted with the evaluation of a wide variety of challenging signs, symptoms and symptom-complexes. From the beginning of the interrogation to the culmination of the medical or surgical management of the patient, potential mishaps and pitfalls are possible if not imminent. They reside in the manner of the examiner, the methodology of interrogation, and the thoroughness and technique of examination. The incidence of misadventure is in direct proportion to the diagnostic errors, anesthetic hazards, blood transfusion accidents, and the surgical technique. What is said or left unsaid, what is done or not done, are likewise to be taken into account.

The avoidance of misadventure favors otolaryngologists who are prepared by virtue of knowledge, skill and experience. They avoid riding pet theories or hobbies, and substitute thoroughness for the intuitive approaches or short cuts. Likewise to be avoided is error-proneness and consultant fallibility which result from the development of special interests, favored techniques, and the fallacy of not considering the total person. Attributes of patience, understanding and personal integrity are essential if difficulties are to be avoided and iatrogenesis prevented.

Surgery is more than a technique. It demands a knowledge of indications and judgment with reference to the assessment of the patient. Resourcefulness becomes a matter of split-second timing and

common sense response when the urgency of the moment requires. Avoidance of surgical misadventures is accomplished by careful planning and readiness to meet every expected need. Surgical logistics require skill and the detailed preparation and training on the part of all personnel, both medical and paramedical.

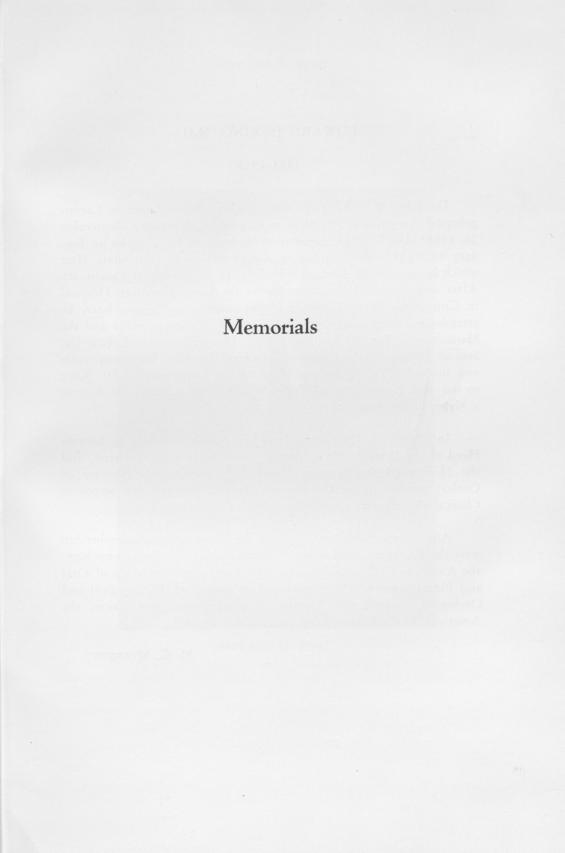
The list of areas of misadventure is long and harried. No one is completely immune and yet, the thoughtful listener and observer is less likely to experience errors of omission and commission. To know one's capabilities and limitations is likewise an asset to the clinician as well as to the patient. There must be an awareness that the responsibility goes beyond oneself in the conduct of a given case. In assessing the total person, consideration must be given to other consultative sources who may offer the patient a better opportunity for complete medical and surgical care. The physical environment and the personnel having to do with the many facets of patient care also figure prominently in the development of mishaps. Avoidance is a matter of the knowledge of the possible existence of these pitfalls and learning from the experience of others.

1853 WEST POLK ST.

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## EDWARD D. KING, M.D.

#### 1888-1956

Dr. Edward D. King, an active Fellow of the American Laryngological Association, was born in Covington, Kentucky, September 20, 1888. Dr. King passed away at his home in Los Angeles on January 15, 1956. He attended St. Xavier College in Cincinnati, after which he entered the Medical School of the University of Cincinnati. After completion of his internship at the Good Samaritan Hospital in Cincinnati, he took post-graduate courses in Vienna; later, he attended graduate course at the University of Pennsylvania and the Massachusetts Eye & Ear Infirmary. He was associated with Dr. Samuel Iglauer at the Cincinnati General Hospital for many years and succeeded Dr. Iglauer as Head of the Department. Dr. King served as a Lieutenant in World War I. Subsequently he became a Major in the Reserve.

In 1945, Dr. King moved to Los Angeles. There he became Head of the Department at the St. Joseph's Hospital, Burbank, and the Hollywood Presbyterian Hospital. He was also Director of Otolaryngology at the Los Angeles General Hospital and served as Clinical Professor at the College of Medical Evangelists.

Among the Societies in which Dr. King enjoyed membership were the American Academy of Ophthalmology and Otolaryngology, the American College of Surgeons, the American Association of Oral and Plastic Surgery, the American Laryngological, Rhinological and Otological Society, the American Laryngological Association, the American Medical Association and local Societies.

M. C. Myerson



## LEWIS FRANCIS MORRISON, M.D.

#### 1899-1956

Dr. Lewis F. Morrison, Active Fellow of A. L. A., died November 10, 1956.

Lewis Francis Morrison was born in San Francisco on April 7, 1899. His early years were memorable as a result of the earthquake and fire of 1906. In 1916 he graduated from Lowell High School and began his studies at the University of California in Berkeley, where he received successively his Bachelor's Degree in May 1920, a Master's Degree in Bacteriology in December 1920 and his M.D. in 1926.

During his undergraduate days at the University he worked far into the night as an ambulance driver for the San Francisco emergency hospital service which frequently left him just enough time to catch the morning ferry to Berkeley.

It was this intimate association with human suffering and tragedy that helped him inspire such faith and understanding which was to be later one of his outstanding characteristics.

During his last undergraduate year at the University and for three years after graduatoin he was actively engaged in research and teaching in the field of Bacteriology, both as a teaching assistant in Berkeley and as a research assistant to Doctor Gay at the United States Public Health Laboratory, Washington, D.C., thus laying a firm foundation for his later writings in clinical medicine. He was elected to Sigma Xi in 1922.

Following his work in bacteriology he returned to medical school, where he graduated in May 1926 and entered the private practice of otorhinolaryngology in association with Wallace Bruce Smith. At this time he was appointed assistant in the Department of Otorhinolaryngology, thus beginning his long and devoted service to the University of California Medical School. During the thirty years and thousands of hours he devoted to this selfless task his first concern

was always the welfare of the patient, but of equal importance was the training and development of young otolaryngologists who were not alone privileged to seek his advice day or night, but were required to. Basically generous to a fault, this rigid self discipline made him an inflexible teacher, who appreciated effort but was intolerant of excuses. The success of this method is best attested to by an engraved silver laryngoscope, which was presented to him at a testimonal dinner in 1952 by the men he had trained.

He rose progressively in the otorhinolaryngology department to instructor in 1928, assistant clinical professor in 1933, associate clinical professor in 1938 and finally to clinical professor and chairman of the department in 1944.

In addition to being chief of the Ear, Nose and Throat Service at San Francisco Hospital (University of California service) he was also senior consultant at Fort Miley and Letterman hospitals.

His society memberships included:

- 1. San Francisco Medical Society: Chairman of ENT Section 1937.
- 2. California Medical Association: Chairman EENT Section 1945, Member of editorial board.
  - 3. American Medical Association.
- 4. Pacific Coast Oto-opthalmological Society: Program and research chairman 1942-1955; President 1952.
- 5. American Academy of Ophthalmology and Otolaryngology: Instructor 1949-1956; Teachers Section 1950-1956; Committee on ENT Pathology 1952-1956.
  - 6. American Hearing Society.
  - 7. Northern California Psychosomatic Society.
- 8. American Rhinological, Laryngological and Otological Society: Vice-President and Chairman of the Western Section 1951; Mem-



LEWIS FRANCIS MORRISON

ber of the council 1953-1956; Chairman Thesis Committee 1954-1955.

- 9. American Broncho-Esophagological Association 1950.
- 10. American Laryngological Association 1950.
- 11. International Broncho-Esophagological Society 1951.
- 12. American Otological Society 1952.
- 13. Fellow American College of Surgeons 1954.
- 14. Member of Royal Society of Medicine (Eng.).

He became a member of the American Board of Otolaryngology in 1952, after serving three years as a guest examiner.

At the time of his death he was president-elect of the Triological Society and was to have been honored at its annual meeting in San Francisco in 1958.

He was chairman of the entertainment committee of the Sixth International Congress of Otolaryngology to be held in Washington, D.C., during May.

His published works numbered over forty and varied from early experimental papers on streptococcus infections through clinical papers on mastoid infections, clinical effects of sulfonamides and antibiotics.

He was a pioneer in emphasizing the relationship of thyroid malfunction to nasal pathology.

He is perhaps best known for his work with the larynx and has made monumental contributions in the field of: A. Recurrent Laryngeal Paralysis; B. Carcinoma of the Larynx; C. Anatomy of the Recurrent Laryngeal Nerves.

He originated the Reverse King Operation, pioneered the use of Radio Cobalt in otolaryngology and the application of Papanicolau smear technique to malignancies of the nasopharynx.

Several outstanding teaching motion pictures were developed with his help and direction.

When seized with a severe coronary occlusion his last requests were characteristically concerned only with providing care for his patients.

A quote from Hans Zinsser's book by an old friend and colleague seems particularly appropriate:

"How good that ere the winter comes, I die!

Then ageless in your heart I'll come to rest

Serene and proud as when you loved me best."

He is survived by his wife, Dorothy Doyle Morrison, a daughter, Mrs. Richard Elkus, Jr., and a son, William Morrison.

F. S.

# THOMAS HENRY HALSTED, M.D.

#### 1865-1956

Dr. Thomas H. Halsted, an Emeritus Fellow of the A. L. A., died November 20, 1956.

Thomas Henry Halsted was born in Listowel, Ontario, in 1865. He planned to become a lawyer but in those days education for the law was a longer process than in medicine and with the suffering of sudden financial reverses by his father he changed his plans almost overnight and decided to study medicine, being graduated from the University of Toronto in 1887. After an internship at the New York Orthopedic Hospital he settled in Syracuse. Soon he left for Europe to study the specialty of oto-laryngology and made several trips to Vienna, Heidelberg and London during the next few years. He was appointed Professor of Oto-laryngology at the College of Medicine of Syracuse University in 1892, being the oldest professor emeritus at the time of his death on November 20, 1956, at the age of 91.

He was a charter member of the American Laryngological, Rhinological and Otological Society. In 1905 he became a member of the American Laryngological Association and was its president in 1917. He was also a member of the American Otological Society and an honorary member of the American Broncho-Esophageal Association. He was a Fellow of the American College of Surgeons and President of the New York State Medical Society in 1920. He was also an original member of the American Board of Oto-laryngology serving in this capacity for a number of years. This work interested him greatly and he took a very active part in it.

During World War I he served in the American Red Cross with the rank of Major, being in France from April until November, 1918.

Dr. Halsted made many contributions to the literature, chiefly of a clinical nature. He was a pioneer in many things, not only in his specialty, but in civic affairs as well. He was much interested in group medicine and formed the Syracuse Clinic in 1921, an organiza-



THOMAS HENRY HALSTED

tion which though well conceived did not succeed since the times were not ready for group practice.

In 1928 he suffered a cerebral thrombosis and was unable to practice for two years. After that he resumed practice until 1935 when he retired. For the last ten years of his life he had several minor strokes and was forced to live as a semi-invalid.

In 1888 he married Lola Bridgford who died in 1894. In 1896 he married Charlotte Palmer who died in 1932. He married Maida Smyth in 1935. Six children survive him.

## CLARENCE W. ENGLER, M.D.

Dr. Clarence W. Engler, an Active Fellow of the American Laryngological Association, died February 23, 1957.

Dr. Clarence W. Engler, until recently president of the staff of St. Vincent Charity Hospital, died in the hospital shortly after 5 p.m., February 23, 1957. He was 61 years old.

He had been president of the staff eight consecutive years and was president until early this year.

Nationally Dr. Engler was widely known as an ear, nose and throat specialist. He was the president of the American Broncho-Esophagological Society for 1957. He was a member of the American Academy of Ophthalmology and Otolaryngology.

Dr. Engler was assistant clinical professor of otolaryngology at the medical school of Western Reserve University and on the staff of City Hospital. His association with WRU began in 1912, when he entered Adelbert College on a scholarship. On graduation in 1916 he entered WRU medical school. He received his M.D. degree from there three years later.

He enlisted in the Army and began training while in medical school, but his Army service was short since the war ended in 1918.

He interned at Charity Hospital, serving under the famous surgeon, Dr. Carl Hamann. Then he took up training in the ear, nose and throat specialty as a protege of Dr. Second H. Large, a distinguished Cleveland specialist.

Later he studied in Philadelphia and Boston, and in 1922 he spent a year in Vienna and Edinburgh. Returning, he began his practice with Dr. Large.

Dr. Engler was a member of the Academy of Medicine of Cleveland, the Cleveland Library Association and the Ohio State Medical Association.



CLARENCE W. ENGLER

Also, he belonged to the Union Club, the Hermit Club and the Pasteur Club.

He was a bachelor. His home was at Hotel Tudor Arms, and his office at 2323 Prospect Avenue, S.E.

He was a native of Fremont, Ohio, the son of John M. and Rose McArdle Engler. There he attended St. Ann's School and Fremont High School.

Dr. Engler is survived by a sister, Mrs. Philip Gottron of Fremont, and by two nieces and two nephews.

## EDWARD CECIL SEWALL, M.D.

## 1875-1957

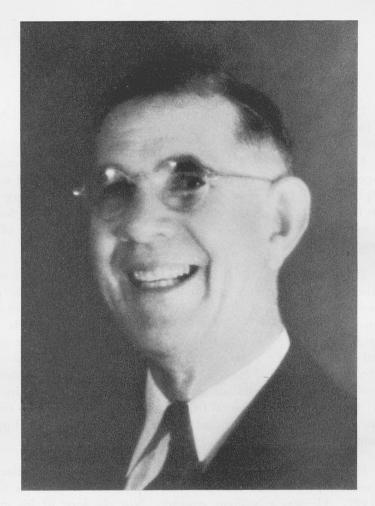
Dr. Edward C. Sewall, Emeritus Fellow of the A. L. A., died April 19, 1957.

Edward Cecil Sewall was born on June 15, 1875, in Portland, Oregon, of a pioneer family. His mother as a little girl walked across the plains behind a covered wagon. Many years later, traveling this same route in a streamlined train from an Eastern meeting, Dr. Sewall was moved to write a little poem revealing a sentimental side of his character which was usually well concealed.

He was educated in the public schools of Portland. An older brother, an attorney, suggested that he go on to college at the new school, Leland Stanford. This he did on a loan from his brother plus a small salary for managing the Zeta fraternity house. He also managed a candy store and tutored students in chemisty. He graduated in the class of '97, always being at or near the head of the class. He took his first year of medicine at the University of Oregon Medical School and then dropped out for a year to earn money. In this year, 1898-99, he made several trips to the Philippines on U. S. transports as commissary clerk, including one trip carrying the Philippine Commission headed by William Howard Taft.

Having saved up enough money to go on with medicine he entered Cooper Medical College in the sophomore year of the Class of 1902. He was a brilliant student. Not the least of his many talents was a good singing voice and skill on the guitar. Together with his younger brother Chester (M.D., Cooper '04) who played the banjo they were the life of any gathering.

In those days an internship was not required and directly upon graduation in 1902 Dr. Sewall went into the private office of Dr. Adolph Barkan, who was the professor of Eye, Ear, Nose, and Throat at Cooper. This was a difficult decision for him and he had much conflicting advice. He was told that he should not limit his field,



EDWARD CECIL SEWALL

and that he would lose his individuality. Of course, this latter was impossible for a dynamic personality such as Dr. Sewall's and fortunately he made the right decision. The field exactly fitted his bent for mechanical ingenuity and gave an outlet for his superb manual dexterity. He was so successful that before long he was the proud owner of a White steamer.

Dr. Sewall was not only a keen student, but he was an enthusiastic teacher. His teaching career began when he entered practice in 1902 as a Clinical Instructor at Cooper. His academic rank advanced until he became a full Clinical Professor and Chief of the Eye, Ear, Nose and Throat Service in 1912, at about the time that Cooper was taken over as the Medical School of Stanford University. In 1914 Dr. Sewall abruptly stopped all Eye work and continued as Chief of Ear, Nose, and Throt until he retired from teaching in 1940.

In 1906 Dr. Sewall was in Europe studying with Professor Killian at Freiburg when news of the San Francisco earthquake came. In 1910 he had his own personal earthquake in the form of a sudden pulmonary hemorrhage. This may have been the best thing that could have happened to a young man of such boundless energy, enthusiasm and thirst for work, for the enforced idleness of convalescence in New Mexico taught him to take care of himself and enabled him to keep going through a long and very productive career. He pioneered in local anesthesia for sinus surgery and tonsillectomy and became renowned for his meticulous frontal, ethmoid and sphenoid work. His greatest interest was always in the detailed anatomy of the head. He was probably the first American to do Hirsch's operation on the pituitary. He developed the mouth gag universally used in tonsillectomy. Killian slightly modified this to develop suspension laryngoscopy.

Besides enjoying life to the full he found time to make significant contributions to the literature of our specialty, as well as to participate actively in the meetings of the Specialty Societies. He was a member of all of them, and had the leaders throughout the country as his true friends. All who knew him will agree that his enthusiasm and energy were tremendously stimulating and he retained a youthful outlook to the end.

In 1910 Dr. Sewall married a Portland girl, Amy Heitschu. They had no children. In 1940 he abrupty dropped medicine and devoted himself to his other interests, which included his home, his workshop, bridge and fishing. He took up music again and did much reading. On April 9, 1957, he died of disseminated carcinoma at the age of 82.

## FRANK R. SPENCER, M.D.

#### 1879-1957

Dr. Frank R. Spencer, an Emeritus Fellow of A. L. A., died April 20, 1957.

When requested to contribute in words the recognizing of the passing of a friend such as Frank Spencer there is much to be said beside a recitation of his professional attainments and honors received. For the record they should be included.

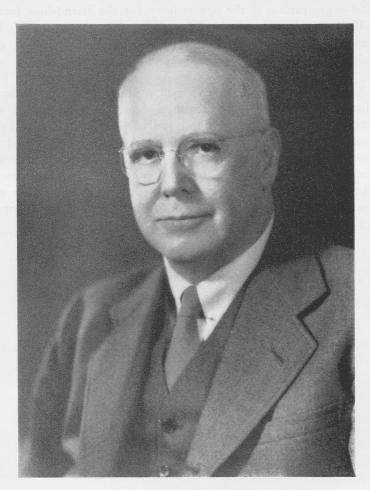
Frank Spencer was born in Burlington, Iowa, June 12, 1879. His Alma Mater was the University of Michigan, receiving there his A.B. and M.D. degrees in 1902. Following postgraduate study at the University of Michigan and the Manhattan Eye, Ear, Nose, and Throat Hospital he chose to practice in Colorado. He associated himself early in his career with the University of Colorado School of Medicine, eventually becoming Professor of Otolaryngology and Head of the Department.

He gave freely of his time to organized medicine and was honored by various organizations, having been a past president of the Colorado State Medical Society, the Colorado Otolaryngology Society, the Colorado State Board of Medical Examiners, the American Academy of Ophthalmology and Otolaryngology, past chairman of the Section of Otolaryngology of the A. M. A.

In addition he held membership in the American College of Surgeons, American Otological Society and the National Board of Otolaryngology. He also held membership in the Sigma Xi Scientific Society and Phi Gamma Delta and Nu Sigma Nu college fraternities.

He also assumed his local obligations, having been Past President of the Boulder Rotary Club.

He served his country in time of war, being a captain in the Medical Corps, U.S.A., during the First World War.



FRANK R. SPENCER

He contributed liberally to medical literature, having published over fifty articles, mostly clinical; while several with original research.

One of the compensations of one's interest and time spent in medical organizations is the opportunity for the friendships formed with kindred spirits, in working for the benefit of humanity. This we have, as has no other group. Friendships of no less value, even though there is a lack of daily associations.

A true evaluation of a friend is an appraisal of character, honor, and integrity. This is not confined to those who have gained wide public acclaim. From years of intermittent association with Frank Spencer he exemplified these qualities to the highest degree. I feel fortunate to have had his friendship. It is inevitable that to each of us comes the end of his or her pathway in life. When that comes to a real friend of long standing, words seem inadequate. I can only borrow with sincere reverence, from the ritual of a church, not my own, *Pax Vobiscum*, and respond with *Et Cum Spiritu Tuo*.

GORDON F. HARKNESS

**Executive Sessions** 

1957

#### **EXECUTIVE SESSION**

## MAY 3, 1957

The Executive Session held in connection with the Seventy-Eighth Annual Meeting of the American Laryngological Association at the Hotel Statler, Washington, D.C., on Friday, May 3, 1957, convened at 9:00 a.m., Dr. LeRoy A. Schall, President, presiding.

The Newcomb Award Committee for 1957 has recognized a Fellow of our Association who has devoted long years of distinguished service to organized medicine. He has served as a Trustee and the President of his own State Medical Society. He was the first President of the Academy of Ophthalmology and Otolaryngology in his home State. On the national scene, he has been the Chairman of the Section on Laryngology, Otology and Rhinology of the American Medical Association and has rendered unusual service to our specialty as its representative in the House of Delegates.

# CITATION FOR NEWCOMB AWARD

1957

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The American Academy of Ophthalmology and Otolaryngology and the Triological Society have honored him with offices in these organizations, and for many years his counsel has been valued as a Director and participant in the activities of the American Board of Otolaryngology. He has served the American Laryngological Association as its Treasurer and more recently as its President. Your Com-

mitte has selected Gordon Follette Harkness for the 1957 Newcomb Award.

Lawrence R. Boies Louis H. Clerf Henry B. Orton

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The following were elected to Active Fellowship in the Association:

Dr. John J. Conley, New York, N.Y.

Dr. Edgar M. Holmes, Boston, Mass.

Dr. Carlos E. Munez-MacCormick, Santurce, P.R.

Dr. James A. Harrill, Winston-Salem, N.C.

# To Emeritus Fellowship:

Dr. Howard W. D. McCart, Toronto, Canada

Dr. Fred Z. Haven, Rochester, Minn.

Dr. Kenneth A. Phelps, Minneapolis, Minn.

# To Honorary Fellowship:

Dr. Louis H. Clerf, St. Petersburg, Fla.

Dr. Arthur W. Proetz, St. Louis, Mo.

Dr. Ralph A. Fenton, Portland, Ore.

SIR VICTOR NEGUS, London, England

# To Corresponding Fellowship:

Dr. Eelco Huizinga, Groningen, Holland

Dr. Luzius Ruedi, Zurich, Switzerland

Dr. Jo Ono, Tokyo, Japan

There being no further business, the session was adjourned at 9:15 a.m.

## ANNUAL BUSINESS MEETING

## MAY 3, 1957

The Annual Business Meeting held in connection with the Seventy-Eighth Annual Meeting of the American Laryngological Society, at the Hotel Statler, Washington, D.C., convened at 2:05 p.m., Dr. LeRoy A. Schall, President, presiding.

# REPORT OF THE SECRETARY AMERICAN LARYNGOLOGICAL ASSOCIATION

## MAY 3, 1957

The Seventy-Seventh Annual Meeting of the American Laryngological Association was held on May 13 and 14, 1956, at the Seigniory Club, Montebello, Canada, under the Presidency of Dr. Bernard J. McMahon. Fifteen scientific papers were presented. Seventy Fellows and 65 guests were in attendance.

The Librarian, Historian and Editor, Dr. Broyles, reported the deaths of:

#### Active Fellows:

Dr. John G. McLaurin

Dr. H. Marshall Taylor

Dr. J. Mackenzie Brown

#### Emeritus Fellows:

Dr. WILLIAM E. SAUER

Dr. Samuel J. Crowe

Dr. Harold G. Tobey

# Corresponding Fellows:

DR. VILRAY B. BLAIR

Dr. James Hardy Neil

The Newcomb Award was presented to Dr. Dean M. Lierle for his outstanding contributions in the field of Rhinology and Laryngology and to the American Board of Otolaryngology.

The following Officers were elected:

| President                         | Dr. LeRoy A. Schall    |
|-----------------------------------|------------------------|
| First Vice-President              | Dr. Henry M. Goodyear  |
| Second Vice-President             | Dr. Robert E. Priest   |
| Secretary                         | Dr. Harry P. Schenck   |
| Librarian, Historian and Editor   | Dr. Edwin N. Broyles   |
| First Councilor                   | Dr. Louis H. Clerf     |
| Second Councilor                  | Dr. Gordon F. Harkness |
| Third Councilor                   | Dr. Henry B. Orton     |
| Fourth Councilor                  | Dr. Bernard J. McMahon |
| The Association has lost by death | during the past year:  |

## Emeritus Fellow:

Dr. Thomas H. Halsted

#### Active Fellows:

Dr. Lewis F. Morrison

Dr. Clarence W. Engler

The Council at its Annual Meeting in Toronto, Canada, on February 2, 1957, recommended for:

# Active Fellowship:

Dr. John J. Conley, New York, N.Y.

Dr. John M. Converse, New York, N.Y

Dr. Edgar M. Holmes, Boston, Mass.

Dr. Carlos E. Munez-MacCormick, Santurce, P.R.

Dr. James A. Harrill, Winston-Salem, N.C.

# Emeritus Fellowship:

Dr. Howard W. D. McCart, Toronto, Canada

Dr. Fred Z. Havens, Rochester, Minn.

Dr. Kenneth A. Phelps, Minneapolis, Minn.

# Honorary Fellowship:

Dr. Louis H. Clerf, St. Petersburg, Fla.

Dr. Arthur W. Proetz, St. Louis, Mo.

Dr. RALPH A. FENTON, Portland, Ore.

SIR VICTOR NEGUS, London, England

# Corresponding Fellowship:

Dr. EELCO HUIZINGA, Groningen, Holland

Dr. Luzius Ruedi, Zurich, Switzerland

Dr. Jo Ono, Tokyo, Japan

Dr. Samuel Salinger was reappointed Abstract Editor.

The Council has voted to hold an Annual Session at the Fairmount Hotel, San Francisco, California, on May 19 and 20, 1958.

The present membership of the Association is:

| Active        | 96  |
|---------------|-----|
| Honorary      | 4   |
| Corresponding | 10  |
| Emeritus      | 20  |
|               | 130 |

Respectfully submitted, HARRY P. SCHENCK Secretary

#### EXHIBIT A

## AMERICAN LARYNGOLOGICAL ASSOCIATION GENERAL FUND OPERATING STATEMENT

For the Twelve Months Ended April 1, 1957

| Income                                      |            |              |            |
|---|------------|--------------|------------|
| Dues—93 members @ \$60.00                   | \$5,580.00 |              |            |
| 4 new members @ \$100.00                    | 400.00     | \$5,980.00   |            |
| Registration Fees-Annual Meeting            |            | 1,136.00     |            |
| Sale of Transactions                        |            | 508.00       |            |
| Interest Received—Savings Account           |            | 74.47        |            |
| Total Operating Income                      |            | descripting. | \$7,698.47 |
|   |            |              |            |
| Expenses                                    |            |              |            |
| Annual Meeting                              |            |              |            |
| Programs                                    |            |              |            |
| Projection Equipment                        |            |              |            |
| Public Address System                       |            |              |            |
| Reporting Service                           |            |              |            |
| Two Girls at Desk                           |            | 1 (00 70     |            |
| Banquet                                     | 1,162.87   | 1,699.78     |            |
|   |            |              |            |
| Council Expense                             |            |              |            |
| Annual Dinner                               | 20.80      |              |            |
| Mid-Winter Meeting (dinner, travel expense) | 720.72     | 741.52       |            |
|   |            |              |            |
| General Expense                             |            |              |            |
| Clerical Hire                               | 500.00     |              |            |
| Transactions (1956)                         |            |              |            |
| Stationery, Printing, Postage               |            |              |            |
| Donation—Sixth International Congress       |            |              |            |
| Auditing                                    | 100.00     |              |            |
| Treasurer's Bond                            | 62.50      |              |            |
| Transfer to de Roaldes Fund                 | 97.00      | 4,179.96     |            |
| Total Expense                               |            |              | 6,621.26   |
| Net Profit to General Fund                  |            |              | 1,077.21   |
| General Fund Balance April 1, 1956          |            |              | 1,711.31   |
| Total General Fund Balance April 1, 1957    |            |              | \$2,788.52 |

EXHIBIT B

## AMERICAN LARYNGOLOGICAL ASSOCIATION TRUST FUND OPERATING STATEMENT

For the Twelve Months Ended April 1, 1957

| Trust | Fund | Income |
|-------|------|--------|
|       |      |        |

| Interest—Government Bonds \$1,179           | .79 |          |
|---|-----|----------|
| Transfer—General Fund to de Roaldes Fund 97 | .00 |          |
| Total Income                                | \$  | 1,276.79 |

#### Trust Fund Expenses

| Printing Newcomb Award                                   | 4.00                  |
|--|-----------------------|
| Net Trust Fund Addition Trust Fund Balance April 1, 1956 | 1,272.79<br>38,460.77 |
| Trust Fund Balance April 1, 1957                         | 39,733.56             |
| Trust Fund Balance represented by Government Bonds, par  | 37,000.00             |
| Remaining Balance represented by Cash                    | 2,733.56              |

### Cash Recapitulation

| Cash in Trust Fund         | \$2,733.56 |
|----------------------------|------------|
| Cash in General Fund       | 2,788.52   |
| Total Fund Cash            | \$5,522.08 |
| Cash in Savings Account    | \$3,790.10 |
| Cash in Commercial Account | 1,731.98   |
| Total Actual Cash          | \$5.522.08 |

EXHIBIT C

## AMERICAN LARYNGOLOGICAL ASSOCIATION REPORT OF TRUST FUNDS

### April 1, 1957

| Fund               | Principal | Unused<br>Income<br>4-1-56 | Income<br>4-1-56 to<br>4-1-57 | Expenses<br>4-1-56 to<br>4-1-57 | Unused<br>Income<br>4-1-57 | Principal<br>and Unused<br>Income 4-1-57 |
|--------------------|-----------|----------------------------|-------------------------------|---------------------------------|----------------------------|--|
| Casselberry \$     | 5,000.00  | \$1,257.75                 | \$ 192.30                     | \$                              | \$1,450.05                 | \$ 6,450.05                              |
| Johnson            | 5,000.00  | 732.31                     | 175.79                        |                                 | 908.10                     | 5,908.10                                 |
| de Roaldes         | 3,000.00  | 976.80                     | 218.99                        |                                 | 1,195.79                   | 4,195.79                                 |
| Newcomb Trust      | 2,000.00  | 345.32                     | 71.97                         |                                 | 417.29                     | 2,417.29                                 |
| Newcomb Prize      | 500.00    | 39.95                      | 16.52                         | 4.00                            | 52.47                      | 552.47                                   |
| Hourne Scholarship | 20.23     | 3.25                       | .71                           |                                 | 3.96                       | 24.19                                    |
| Research           | 16,014.19 | 3,570.97                   | 600.51                        |                                 | 4,171.48                   | 20,185.67                                |
| -                  |           |                            |                               |                                 |                            |  |
| Totals\$3          | 31,534.42 | \$6,926.35                 | \$1,276.79                    | \$4.00                          | \$8,199.14                 | \$39,733.56                              |

#### EXHIBIT D

## AMERICAN LARYNGOLOGICAL ASSOCIATION TRUST FUND INVESTMENTS

April 1, 1957

| Sovernment Bonds        | Des                            | cription | Par Value   | Income 1956-1957 |
|-------------------------|--------------------------------|----------|-------------|------------------|
| U. S. Savings           | _2 <sup>1</sup> / <sub>2</sub> | G 1957   | \$ 1,000.00 | \$ 25.00         |
|                         | 21/2                           | G 1958   | 2,000.00    | 50.00            |
|                         | 2 1/2                          | G 1959   | 5,000.00    | 125.00           |
|                         | 2 1/2                          | G 1960   | 1,000.00    | 25.00            |
|                         | 21/2                           | G 1961   | 1,000.00    | 25.00            |
|                         | 2.76                           | K 1965   | 7,000.00    | 193.20           |
|                         | 2.76                           | K 1966   | 1,000.00    | 27.60            |
| U. S. Treasury          | _2 3/4                         | 1958-63  | 1,000.00    | 27.50            |
|                         | 2 1/2                          | 1964-69  | 3,000.00    | 75.00            |
|                         | 2 1/2                          | 1967-72  | 1,000.00    | 25.00            |
|                         | 3 1/4                          | 1978-83  | 3,000.00    | 97.50            |
|                         | 3                              | 1995     | 5,000.00    | 150.00           |
|                         | 23/4                           | 1961     | 6,000.00    | 165.00           |
| Matured bonds exchanged |                                |          |             | 168.99           |
|                         |                                |          | \$37,000.00 | \$1,179.79       |

April 18, 1957

#### ACCOUNTANT'S REPORT

American Laryngological Association

#### Gentlemen:

We have examined the records of the American Laryngological Association for the period April 1, 1956 to April 1, 1957.

All of the receipts and disbursements since April 1, 1956 were verified by us, the cash balances verified, and the U. S. Government Bonds counted and examined.

In our opinion the accompanying financial statements present accurately the position of the American Laryngological Association as of April 1, 1957, and the results of its operations for the twelve months then ended.

CHARLES C. BARNES & Co.

Certified Public Accountants

#### COMMENT

The increasing expense of holding the Annual Meeting together with the rising cost of publishing the *Transactions*, seems to justify the increase in Annual Dues, if we are to maintain a comfortable balance in our Treasury.

Respectfully submitted,

FRED W. DIXON, M.D., Treasurer

#### EDITOR AND HISTORIAN REPORT

COUNCIL MEETING, MAY 2, 1957

#### STATLER HOTEL

#### WASHINGTON, D.C.

Since the Council Meeting on February 2, 1957, in Toronto, we have received an additional thirty-two dollars for the sale of Volume 76 of the Transactions and so far for the sale of Volume 77 we have received two hundred and one dollars.

Extra copies of the Transactions were received by the Editor on April 4, 1957. Therefore, the ordered volumes were probably mailed to the members around the first of April.

Many letters were written to the Printer, Mr. William J. Radman, concerning the delay of the Transactions. The latest letter of March 27, 1957, reads as follows:

"We are very sorry the Transactions are so late. We have been having trouble with the company that prints the Annals and Transactions for us. They left the Annals Type lay for three weeks before printing the December issue. This naturally has delayed everything three weeks.

"I think this will be the last time for such delays as beginning with the March issue of the Annals we are changing printers. We feel that we will get better quality printing and better service.

"We hope you will bear with us in this unfortunate situation. It is a case where this printer is getting up in years and is letting his business drag. He has been printing the Annals over twenty years and Dr. Proetz decided that we could not tolerate such delays any longer.

"The Transactions should be in the mail by the end of the month. The balance of the books will be sent to you."

All discussions were in the hands of the printer by July 15, 1956, and we can see no reason for the delay of eight or nine months in

receiving the Transactions. I certainly feel that the Transactions should be printed much sooner in the future than they have been in the past.

I regret to announce that Dr. Clarence W. Engler, Active Fellow, died February 23, 1957, and also it has been brought to our attention that Dr. Edward D. King, Active Fellow, passed away in 1956. The Association was not notified of this until Volume 77 of the Transactions was returned. An obituary has been obtained on Dr. Engler and I have contacted Dr. Pressman for an obituary of Dr. King. Also, as reported at the February Council Meeting, Dr. Lewis F. Morrison, Active Fellow, and Dr. Thomas H. Halsted, Emeritus Fellow, have passed away. Obituaries have been obtained on both these members.

I wish to thank the officers and members of the Association for their cooperation in preparing the Transactions and obituaries as their help has been greatly appreciated.

Respectfully,
EDWIN N. BROYLES
Editor and Historian

PRESIDENT SCHALL: Gentlemen, you have heard the report of the Historian and Editor. What is your pleasure?

Dr. LE JEUNE: I move its acceptance.

Dr. VAN ALYEA: I second that.

PRESIDENT SCHALL: You have heard the motion seconded. Is there any discussion? Those in favor say "aye"; opposed "no." It is carried.

Gentlemen, out of respect to our departed members, Dr. King, Dr. Engler, Dr. Morrison and Dr. Halsted, please rise for a moment of silent prayer.

. . . The members rose in a moment of silent prayer in memory of their departed Fellows . . .

PRESIDENT SCHALL: Thank you very much!

May I have the report of the Laryngological Research Fund Committee, Dr. Boies?

Dr. Boies: Mr. Chairman, when the Secretary wrote to me about having a report ready, he said, "I hope you will report some action this year."

This committee consist of Drs. Hilding, Maxwell, Priest, Proetz, Work and myself. We have not had any requests for any research subsidy of any kind and we have not gone out looking for men to do research. I don't think that is the way we are going to get any research done. The total amount in the fund approximates \$39,000 at this time and unused income amounts to \$6,000. We will be happy to have suggestions or a discussion of this angle that I injected that we do not go out looking for men to do research. We have not had any applicants. So the committee records that there have been no monies used in the past year.

PRESIDENT SCHALL: You have heard the report of Dr. Boies under the Research Fund. What is your pleasure?

Dr. VAN ALYEA: I move it be accepted.

Dr. Lederer: I second that.

PRESIDENT SCHALL: All in favor of that say "aye"; contrary "no." It is carried. I think I could say to Dr. Boies that I agree with the committee. The man must hunt for funds to carry on a project. You cannot start research by going hunting the man and assign him a subject. He has to be so enthused that he wants support. I would suggest too that \$6,000 is just a drop in the bucket if you start research. Rather than dribble it out a couple thousand here and a couple thousand there, personally I would like to see it grow into a fund that could really support research because research is expensive. That is my personal opinion.

Now I think we are ready for the report of the Nominating Committee, Dr. Hill, Chairman.

DR. HILL: The following is the report of the Nominating Committee for the Board of Directors:

Dr. Schenck

Dr. Viole

Dr. Maxwell

Dr. LeJeune

Dr. Dixon

Dr. Broyles

Dr. Harkness

Dr. Orton

Dr. McMahon

Dr. Schall

Dr. McMahon: I move that be accepted.

Dr. Lederer: I second that.

President Schall: All in favor say "aye"; contrary "no." It is carried.

DR. HILL: Mr. President, in view of the well known modesty of the present Secretary, I move you that the President cast one ballot in behalf of this slate.

PRESIDENT SCHALL: You have heard the motion. Do I hear a second?

Dr. Lederer: I second that.

President Schall: Is there any discussion? Those in favor of the President casting one ballot in favor of the slate presented say "aye"; contrary "no." It is carried. I have cast the ballot.

Is there any miscellaneous business?

SECRETARY SCHENCK: The report of Dr. Lederer, who is our representative of the Temporary Development Group.

DR. LEDERER: Mr. President and Fellow Members, I wish to make this report brief in as much as you have copies of it. To make it official, the Temporary Development Group is a group that has been created to explore ways and means of some national program of investigation into hearing loss and to provide such services that are not already provided by existing organizations.

The very thought expressed here a moment ago by Dr. Boies and Dr. Schall—that research men are not created and you cannot go out and buy them—came up in the discussion of a group that met in Chicago on April 3 with representation from all of your national societies and from the Audiology Foundation, the Canadian Otolaryngological Association and many more. Present were such representatives and they suggested an agenda which I would like to make part of the record.

In essence they decided on three main purposes of this Temporary Development Group: to promote a considerable expansion of investigation into the problems of hearing and deafness; second, to create a public understanding of these problems and the possibilities for rehabilitation of those who have a hearing impairment and, third, to coordinate the many heretofore scattered efforts related to the problems of hearing and deafness.

Since you will be hearing much more about this in perhaps the Otological Society, I will not go into any greater detail except to tell you that in essence a national campaign would be desirable, putting hearing on the same plane as Polio, Heart and other fund raising movements. How this is to be done, how it is to be implemented, and so on, remains for this Temporary Development Group to perhaps figure out. It will take, initially, money in order to develop it, to hire fund raising organizations—I mean professional ones—and there are those of us who are a little bit hesitant about the very inception of this and others who are most enthusiastic about giving it a try. It surely would have a good educational purpose.

Our own part in this present situation would be if we had large funds—and I hesitate even to speak about it, when one mentions \$6,000 because it is a drop in the bucket—it would be wonderful but what is desired, if you have perhaps people who are interested in a

national campaign in behalf of hearing or research, promotion of education, I suppose we are looking for that Fairy Godmother or Godfather, who would sponsor this. At the moment I do not believe there is any action necessary, Mr. President, on the part of the Society other than to accept the report and wish its group participants Godspeed in the hope that this can be realized.

Thank you.

. . . The material reported on was in full as follows:

SUGGESTED AGENDA FOR THE FIRST ORGANIZATIONAL MEETING OF THE TEMPORARY DEVELOPMENT GROUP - WEDNESDAY, APRIL 3

- 1. Adopt a voting rule for all actions of the TDG. It is assumed that for purposes of this action that a simple majority rule shall obtain.
  - 2. Select a chairman of the TDG.
  - 3. Select a secretary of the TDG.
  - 4. Select a treasurer of the TDG.
- 5. Consider and take action on the possibility of having an informed representative of one or two Ethical Money Raising Organizations appear before the TDG at this meeting in order to answer questions. During the preliminary working on the major object of this whole idea there were two Ethical Money Raising organizations that showed interest in a Hearing Foundation. They also were very helpful. These two companies are the American City Bureau, 221 North LaSalle St., Chicago 1, Illinois, and the John Price Jones Co., 150 Nassau St., New York 38, New York. The reason for suggesting that this item be put on the agenda in this order is that given about three hours' notice, a representative from either one or both of these companies could appear for such purposes that may be of value to the TDG.
- 6. Consider and if at all possible select a date when the work of the TDG shall have been finished and the TDG dissolved.
- 7. Make a decision that shall be a directive to the selected Treasurer of the TDG in the regards of paying for expenses of meetings of the TDG and the expenses of its individual members.

- 8. Consider and if at all possible decide upon some general principles under which the best and most effective Hearing Foundation may be developed out of this TDG.
- 9. If it should be agreed in Item 8 that it is necessary to select a Money Raising Organization, then to select two or at the most three members of the TDG to investigate this matter and make a finite report at the next meeting of the TDG.
- 10. Discuss and make some finite plans as to how the TDG may acquire sufficient funds to do its task.
- 11. Agree upon the time and place of the next meeting of the TDG.
- 12. If positive action had been taken on Item 5, to then have this representative or these representatives appear before the TDG in order that all members may have an opportunity to question him or them on these matters.

## MINUTES OF THE MEETING OF THE TEMPORARY DEVELOPMENT GROUP - APRIL 3, 1957

This meeting was held in the Palmer House, Chicago, Illinois. Those present were:

Dr. S. Richard Silverman representing A. G. Bell Assoc. for the Deaf

Dr. Meyer S. Fox representing American Academy of O & O

Miss Mary Thompson representing American Hearing Society

Dr. F. L. Lederer representing American Laryngological Soc.

Dr. Howard P. House representing American Triological Soc.

Dr. Charles E. Kinney representing American Medical Association

Dr. K. M. Day representing American Otological Society

Dr. Helmer Myklebust representing American Speech & Hearing Assn.

Dr. Norton Canfield representing Audiology Foundation

Dr. Fernand Montreuil representing Canadian Otolaryngological Soc.

The attached suggested agenda for this meeting had been circulated to those present several weeks prior to this meeting. It is made a part of these minutes for reference. Dr. Kinney acted as Temporary Chairman of the Temporary Development Group, hereafter referred to as the TDG. He called the meeting to order at about 9:20 a.m.

Item 1 on the agenda was discussed. Moved by Day and seconded by House that the voting rule for the TDG be on a 70 per cent of those present basis. This was passed with nine AYE votes—no NAE votes and no abstentions.

Item 2. Moved by House and seconded by Canfield that Dr. Meyer S. Fox be the Chairman of the TDG. This was passed with eight Aye votes—no Naye votes and one abstention.

Dr. Fox then chairmaned the meeting from this point.

Although not on the agenda, Dr. Kinney brought up the matter of publicity. Moved by Kinney and seconded by House that "Until rescinded by formal action of the TDG, no permanent or temporary member of the TDG shall divulge any of the discussions or actions of the TDG except 1) in reporting back to the governing body of the organization which he represents or 2) in attempts to collect contributions for the work of the TDG. In such exceptions the reporting member is to request from the person or persons so reported to that this 'No publicity' rule be followed." This was passed with ten Aye votes.

- Item 3. Moved by Lederer and seconded by Silverman that Kinney be Secretary of the TDG. This was passed with nine Aye votes —no Naye votes and one abstention.
- Item 4. Moved by House and seconded by Day that for the time being the position of Treasurer be combined with that of Secretary and that Kinney function in both capacities. This was passed with nine Aye votes—no Naye votes and one abstention.
- Item 5. After some discussion of this item it was moved by House and seconded by Kinney that this matter be postponed as far as this meeting of the TDG is concerned. This would automatically

take care of Item 12 on the suggested agenda. This was passed with 10 Aye votes.

Item 6. Without formal action it was agreed to postpone action on this matter until later in today's meeting.

Item 7. After some dicsussion it was moved by Day and seconded by House that each member of the TDG should submit to the Secretary-Treasurer his expenses for this meeting as a matter of record. This was passed with ten Aye votes.

The question was raised concerning the advisability of asking National organizations other than those represented here today to be part of the TDG and have a representative on this TDG. Several such organizations were discussed. Moved by Silverman and seconded by Myklebust that the Conference of Executives of American Schools for the Deaf be invited to be part of the TDG. This was passed with ten Aye votes.

Item 8. Considerable discussion ensued regarding this item. Although no formal action was taken as to this matter the following summary pretty well depicts the rather general feeling of this group:

It was generally agreed that no matter how hard one tried it would be impossible to write a list of objectives for a foundation that may be developed by the TDG without including objectives that have been enumerated by one or more of the presently existing organizations in the field of hearing and deafness. However, in view of the fact that such objectives have not been attained such a foundation should have the following objectives:

- 1) To promote a considerable expansion of investigation into the problems of hearing and deafness.
- 2) To create public understanding of these problems and the possibilities for rehabilitation of those who have a hearing impairment.
- 3) To coordinate the many heretofore scattered efforts related to the problems of hearing and deafness.

It was also generally agreed that there were two possible methods of approach to the fulfillment of these objectives. One would be the development of a council type of controlling body. The TDG brings to this entire effort all of the advantages of a council type of governing

body. The fact that it has been proposed that the TDG be dissolved when its work has been completed would serve to eliminate the several inherent disadvantages of having a council type of governing body continue indefinitely. The other method would be to have a foundation with a Board of Trustees and all that such connotes. It is hoped that such may be developed by this council type of TDG.

Item 9. This matter was discussed at length. Without formal action it was agreed that Fox, Kinney and Canfield should be authorized to act individually and collectively as a Sub-group to contact Ethical Money Raising Organizations and present some definite recommendations at the next meeting of the TDG.

Item 10. Moved by Myklebust and seconded by Silverman that each member of the TDG be allowed to solicit funds for the financing of the work of the TDG. This was passed by ten Aye votes. Canfield offered the services of the Audiology Foundation as a temporary repository for contributed funds in order that the contributor may (if desired) take advantage of having such contributions be considered as Tax Deductible. He pointed out that the Audiology Foundation was not in a position to accept Stocks or other equities which would have to be transferred into cash. Moved by Silverman and seconded by Thompson that Canfield's offer be accepted. This was passed by ten Aye votes.

The postponed Item 6 was taken up. Moved by Day and seconded by House "That the work of the TDG be completed at the earliest possible time and that then the TDG be dissolved." This was passed by ten Aye votes.

Item 11. This matter was discussed at length. It was agreed that because of the varied types of work of the members of the TDG it would be impossible to find a time and place that would be completely acceptable for ALL members for every meeting. It was suggested and generally agreed to without formal action that the chairman be empowered to set the time and place of the next meeting of the TDG.

Meeting adjourned at 3:10 p.m.

Signed: C. E. KINNEY, Secretary Approved: M. S. FOX, Chairman ADDENDA. After the meeting had been adjourned it was agreed between the Chairman and Secretary that at subsequent meetings of the TDG no matter of material importance would be acted upon unless that item had been placed on the agenda that was circularized when the meeting was called.

PRESIDENT SCHALL: Gentlemen, you have heard the report for the Temporary Development Group. What is your pleasure about this report?

Dr. Robb: I move the report be accepted.

DR. HILL: I second that.

PRESIDENT SCHALL: It has been moved and seconded to accept the report. Is there any discussion? Those in favor signify by saying "aye"; contrary "no." It is carried and so ordered.

My apologies to Dr. Proetz. I missed No. 6, Report of the American Board of Otolaryngology which I see will be given by Dr. Hill.

DR. HILL: Since the last meeting of the Association there has been one examination held by the Board in Chicago last fall. 73 candidates were examined. Of this group 46 passed, 19 were conditioned and 8 failed, a failure percentage of 36 per cent.

PRESIDENT SCHALL: What is your pleasure with this report?

Do I hear a motion to accept it?

Dr. Goodyear: I move it be accepted.

Dr. Robb: I second that.

PRESIDENT SCHALL: It has been moved to accept the report.

All in favor signify by saying "aye"; contrary "no." It is carried.

Is there any other report of a special committee?

SECRETARY SCHENCK: No other reports, sir.

PRESIDENT SCHALL: There being no other reports, may I suggest to the slate as to the Board that they organize and make a report at the next executive session, which will be at the end of the scientific session.

There being no other business to come before this executive session, I will declare it closed.

... Whereupon at 2:20 p.m. the session was adjourned.

#### **EXECUTIVE SESSION**

#### MAY 3, 1957

The Third Business Meeting held in connection with the Seventy-Eighth Annual Meeting of the American Laryngological Association, held at the Hotel Statler, Washington, D.C., May 3, 1957, convened at 4:50 p.m., Dr. LeRoy A. Schall, President, presiding.

President Schall: Gentlemen, we will open our Executive Session, limited to members only.

We have already elected the Board of Directors. Now we come to the organization of the Board.

SECRETARY SCHENCK: The members whose names are on the Board please go to the rear of the room.

... Organization of Board of Directors . . .

President Schall: Dr. Maxwell will make a report on the organizing committee.

Dr. Maxwell: I will put the names on the board:

Dr. Schenck President

Dr. LeJeune Second Vice-President

Dr. Wiole Secretary

Dr. Dixon Treasurer

Dr. Broyles Librarian, Historian and Editor

#### COUNCIL

| First Councilor  | Dr. Harkness |
|------------------|--------------|
| Second Councilor | Dr. Orton    |
| Third Councilor  | Dr. McMahon  |
| Fourth Councilor | Dr. Schall   |

PRESIDENT SCHALL: All of these were already elected to this slate. Now they have been assigned to their office. I will ask Dr. Maxwell and Dr. Lynch to escort the new President to the rostrum.

Harry, may I say to you it has been a great pleasure working with you as Secretary. You have made a good Secretary. I know you are going to make a fine President. May you enjoy this office as much as I have. All good luck to you.

... The members rose and applauded ...

PRESIDENT SCHALL: I entrust in your keeping this ancient gavel donated by Dr. Delavan to this Association as a symbol of your office. Good luck to you!

... President Schenck assumed the Chair ...

President Schenck: Thank you very much!

I would like to call to the attention of the Association, however, that this election was a matter of expediency in that Dr. Schall is still President until sundown tomorrow. Unfortunately, owing to the change in the meeting schedules we had to transact all of our business today. So this ceremony is a mere gesture.

I accept this with great humility because I am appreciative of the long line of distinguished predecessors that have held this office and I feel that I owe a great deal to the Association during the coming year to carry on the tradition of those great predecessors.

I also want to say that the success of this meeting was not due to any of my efforts at all, that Dr. Schall originated the program.

He not only secured the speakers but he secured all of the discussers. He did much better than I could ever have done.

I thank President Schall and I thank the Association. (Applause)

Past President Schall: Is there any other business to come before the Association? If not, the Chair will announce the dinner across the street at the Sheraton-Carlton Hotel, at 6:30, open to Fellows and their ladies and those guests specially invited by the Council, to meet then for cocktails and dinner and what is most important, we think a good entertainment. Dress is optional. Those who have a Tuxedo wear it, please, or what you have. Those who don't, please come in any way you wish.

If there is no other business to come before the Association, the Chair will entertain a motion to adjourn.

Dr. Theobald: I move we adjourn.

... There being no further business to come before the meeting, it was adjourned at 4:55 p.m.

List of Fellows
1957

#### LIST OF FELLOWS

## Date Indicates Year Admitted to Active Fellowship

Attendance at meetings is shown by figures following each name.

Asterisk (\*) indicates year paper was read.

#### Active Fellows

- 1942. Ashley, Rea E., 384 Post Street, San Francisco 8, California, 1946, '47, '48, '49, '50, '51\*, '53, '54, '56.
- 1956. Baker, Daniel Clifton, Jr., 903 Park Avenue, New York 21, N. Y., 1956, '57.
- 1936. Ballenger, Howard C., 723 Elm Street, Winnetka, Illinois, 1936, '37, '38\*, '40, '41, '46\*, '47, '48, '51, '52\*, '53, '54, '55, '56.
- 1949. BECK, August Leo, 55 Pell Place, New Rochelle, N. Y., 1949, '50, '51, '52\*, '54, '55.
- 1938. Blassingame, Charles Decatur, 414 Physicians and Surgeons Bldg., Memphis 3, Tennessee, 1938, '39, '41, '42, '44, '46\*, '47, '50, '51, '52\*, '53\*, '57.
- 1944. Boies, Lawrence R., University Hospital, Minneapolis 14, Minnesota, 1944, '46, '47, '48\*, '49, '50\*, '51\*, '53, '54, '55, '56, '57.
- 1955. BORDLEY, JOHN E., Johns Hopkins Hospital, Baltimore 5, Maryland, 1955, '56, '57.
- 1941. Bowers, Wesley C., 2 East 54th Street, New York 22, N. Y., 1941, '42, '44, '49.
- 1951. BOYDEN, GUY LEE, 1735 N. Wheeler St., Portland 12, Ore., 1952\*, '53, '54.
- 1955. Brown, Lester Alexander, 490 Peachtree Street, N.E., Atlanta 8, Georgia, 1955, '56, '57.
- 1940. Broyles, Edwin N., 1100 North Charles Street, Baltimore 1, Maryland, 1940, '41\*, '42, '46, '48\*, '49, '50, '51\*, '52, '53, '54, '55, '56.

- 1930. CAMPBELL, EDWARD HASTINGS, 133 S. 36th St., Philadelphia 4, Pennsylvania, 1930, '31\*, '32\*, '33, '35, '38, '39\*, '40, '41, '47, '48, '49, '51, '52, '55, '56.
- 1945. CAMPBELL, COLONEL PAUL A., USAF (MC), Office of Air Attache Box 36, F.P.O. 100, New York, N. Y., 1946, '47, '49, '51, '57\*.
- 1942. Canfield, Norton, 175 St. Ronan St., New Haven 11, Connecticut, 1942, '46, '47, '48, '49\*, '50, '51, '56, '57.
- 1939. Cody, Claude Carr, 1304 Walker Avenue, Houston 2, Texas, 1939, '41, '42, '44, '46\*, '47, '48\*, '49, '50, '51, '52, '53, '54, '55.
- 1957. Conley, John J., 139 East 36th Street, New York 16, N.Y.
- 1957. Converse, John Marquis, 722 Park Avenue, New York 21, N.Y.
- 1941. Cunning, Daniel S., 115 East 65th Street, New York 21, N. Y., 1941, '42\*, '44, '46, '47\*, '48, '49, '50\*, '51, '52, '53, '54, '55\*, '56, '57.
- 1951. Davison, Francis W., Geisinger Memorial Hospital, Danville, Pa., 1951, '52, '53\*, '54, '55, '56, '57.
- 1941. DIXON, FRED W., 1027 Rose Building, Cleveland, Ohio, 1941, '42\*, '44, '46, '47\*, '49\*, '50, '51, '52, '53, '54, '55, '56, '57.
- 1947. EAGLE, WATT WEEMS, Duke Hospital, Durham, N. C., 1948\*, '49, '51, '53, '54, '56, '57.
- 1954. EQUEN, MURDOCK S., 2505 Habersham Road N. W., Atlanta, Ga., 1954, '55, '57.
- 1952. ERICH, JOHN B., Mayo Clinic, 102 Second Avenue, Rochester, Minn., 1953, '56\*, '57.
- 1930. Figi, Frederick A., Mayo Clinic, Rochester, Minnesota, 1930, '32\*, '34, '35, '38\*, '42\*, '47\*, '48, '50\*, '53\*.
- 1955. FITZ-HUGH, GLASSELL SLAUGHTER, 2003 Spottswood Road, Charlottesville, Virginia, 1955, '57.
- 1956. Friedburg, Stanton A., 5730 South Kenwood Avenue, Chicago, Illinois, 1956, '57\*.

- 1932. FURSTENBERG, ALBERT CARL, Out-Patient Bldg., University Hospital, Ann Arbor, Michigan, 1933\*, '36\*, '38\*, '46, '48\*, '50, '51, '53, '54, '55\*, '56, '57.
- 1936. GALLOWAY, THOMAS CYRUS, 636 Church Street, Evanston, Illinois, 1936, '37, '38\*, '39, '40, '41, '42\*, '46\*, '47, '48, '50, '51, '52, '53, '54, '55, '56, '57.
- 1940. GOODALE, ROBERT L., 330 Dartmouth Street, Boston, Massachusetts, 1940, '41, '42\*, '44\*, '46, '47, '49, '50\*, '53, '54, '55\*, '56, '57.
- 1928. Goodyear, Henry M., 556 Doctors' Building, Cincinnati 2, Ohio, 1928, '29, '30\*, '31, '32, '33, '34\*, '35, '36, '37, '38, '39, '40, '44\*, '46, '47, '48, '49\*, '51, '53, '55, '57.
- 1950. HALL, COLBY, 1136 West Sixth Street, Los Angeles 14, Calif., 1950.
- 1940. Hansel, French K., 634 North Grand Boulevard, St. Louis 3, Missouri, 1940, '42, '46, '47, '51, '53\*, '54\*, '57.
- 1933. HARKNESS, GORDON FOLLETTE, Blackhawk Hotel, Davenport, Iowa, 1934, '35, '36\*, '40, '41, '44, '46, '47, '48, '49, '50, '51, '52, '53, '54\*, '55, '56, '57.
- 1957. HARRILL, JAMES A., Bowman Gray School of Medicine, Winston-Salem, N.C., 1957.
- 1942. HEATLY, CLYDE A., 11 North Goodman Street, Rochester 7, N.Y., 1942, '46\*, '49, '50, '52, '53\*, '54, '55, '57.
- 1943. HILDING, ANDERSON C., Research Laboratory, St. Luke's Hospital, Duluth 11, Minnesota, 1944\*, '46, '47, '48\*, '49, '50, '51, '53, '55, '56\*, '57.
- 1955. Hilger, Jerome A., 350 St. Peter Street, St. Paul 2, Minnesota, 1955, '56\*, '57.
- 1928. HILL, FREDERICK THAYER, Professional Building, Waterville, Maine, 1928, '29\*, '30\*, '31, '32, '33, '34, '35, '36, '37\*, '38\*, '39, '40, '41\*, '42, '44\*, '46, '47, '48, '49\*, '50, '51, '52\*, '53, '54, '55, '56, '57.

- 1945. HOLINGER, PAUL H., 700 North Michigan Ave., Chicago 11, Illinois, 1946, '47, '49, '50\*, '51\*, '52, '53, '54\*, '55, '56, '57.
- 1944. Hoople, Gordon D., 1100 East Genesee St., Syracuse 10, New York, 1946, '47, '48, '49, '50, '51, '52, '53, '54\*, '55, '56.
- 1957. HOLMES, EDGAR H., 330 Dartmouth Street, Boston 16, Mass., 1957.
- 1952. IRELAND, P. E., Room 82, Banting Institute, University of Toronto, Toronto, Ontario, 1952, '53, '54, '55, '56\*, '57.
- 1938. Jackson, Chevalier Lawrence, 3401 North Broad Street, Philadelphia 40, Pa., 1938, '39, '40, '41\*, '42, '44\*, '46, '47\*, '48, '49, '51, '53, '54, '55, '56, '57.
- 1942. Kelly, Joseph D., 140 East Fifty-fourth Street, New York 22, N. Y., 1942, '44\*, '47, '48, '49, '51, '53, '54, '55.
- 1950. KLINE, ORAM R., 514 Cooper Street, Camden, N. J., 1950, '51, '52, '53, '54, '55, '56, '57.
- 1953. Lederer, Francis Loeffler, 1853 W. Polk Street, Chicago 12, Illinois, 1953, '54, '55, '56, '57\*.
- 1936. LeJeune, Francis Ernest, Ochsner Clinic Building, Prytania and Aline Streets, New Orleans 15, Louisiana, 1937, '46\*, '57, '50, '51, '52, '53, '54\*, '55, '56, '57.
- 1933. Lierle, Dean M., University Hospital, Iowa City, Iowa, 1933, '34, '35\*, '37, '38, '39, '40\*, '42\*, '44\*, '46, '47\*, '48, '49, '50\*, '51, '52, '53, '54, '55\*, '56, '57.
- 1949. LINDSAY, JOHN R., 950 E. 59th Street, Chicago 37, Illinois, 1949, '50, '51\*, '53, '55\*, '56, '57.
- 1939. Lupton, Irving Martin, 806 Medical Arts Building, Portland, Oregon, 1946, '50.
- 1952. Lynch, Mercer G., 6262 Prytania Street, New Orleans 18, Louisiana, 1953, '54, '55\*, '57.
- 1941. Martin, Robert C., 384 Post Street, San Francisco 8, California, 1941, '44, '47, '48, '50, '51, '53, '54, '55, '56.

- 1948. MAXWELL, JAMES H., Out-Patient Bldg., University Hospital, Ann Arbor, Michigan, 1948, '49, '50\*, '51\*, '52, '53, '54, '55, '56, '57.
- 1952. McCall, Julius W., 610 Rose Building, Cleveland 15, Ohio, 1952, '53\*, '54, '55, '56, '57.
- 1939. McCaskey, Carl Heber, 608 Guaranty Building, Indianapolis 4, Indiana, 1939, '40, '41, '42\*, '44, '46\*, '47, '48, '49, '50, '51, '52, '53, '55, '56, '57.
- 1951. McHenry, Lawrence C., 604 Medical Arts Bldg., Oklahoma City, Okla., 1953\*.
- 1933. McMahon, Bernard J., 8230 Forsythe Blvd., Clayton 24, Missouri, 1934\*, '35, '36, '38\*, '41, '44, '46\*, '47, '48, '49, '50\*, '51, '52, '53, '54, '55\*, '56\*, '57.
- 1931. McNally, William James, 1509 Sherbrooke Street West, Montreal, Canada, 1931, '33, '34\*, '39, '44, '47, '49, '49, '52, '53, '54\*, '55, '56, '57.
- 1954. MELTZER, PHILIP E., 285 Commonwealth Ave., Boston, Mass., 1954\*, '56, '57.
- 1952. MILLER, ALDEN H., 500 South Lucas Ave., Los Angeles 17, Calif., 1952, '53\*, '55, '57.
- 1954. Moore, Paul M., 10,515 Carnegie Avenue, Cleveland, Ohio, 1954, '55\*, '56, '57.
- 1940. Morrison, William W., 140 E. 54th Street, New York 22, N. Y., 1940, '41\*, '44, '47, '49\*, '50, '52, '53.
- 1957. Munez-MacCormick, Carlos Eduardo, 71 Park Terrace, Santurce, Puerto Rico, 1957.
- 1953. Murtagh, John A., 2 Maynard Street, Hanover, New Hampshire, 1953, '54, '55, '56\*, '57.
- 1927. Myerson, Mervin C., 416 North Bedford Drive, Beverly Hills, California, 1927 '28\*, '29, '30, '31\*, '32\*, '33\*, '34\*, '35, '36, '37, '38, '39\*, '40, '41\*, '42, '44, '50\*, '57.

- 1937. Nash, C. Stewart, Medical Arts Building, Rochester 7, New York, 1937, '38\*, '40, '42, '44, '46, '49, '50, '51, '52, '53, '54, '55, '56\*.
- 1956. Norris, Charles Morgan, 3401 North Broad Street, Philadelphia 40, Pennsylvania, 1956, '57.
- 1927. ORTON, HENRY BOYLAN, 224 Delavan Avenue, Newark 4, New Jersey, 1927, '28, '29, '30\*, '31, '32, '33\*, '35, '36, '37, '38\*, '40, '41, '42, '44\*, '47\*, '49, '51\*, '52, '53\*, '54, '55\*, '56, '57.
- 1954. Pressman, Joel J., 10,911 Weyborn Avenue, Los Angeles 24, Calif., 1954, '56\*.
- 1951. PRIEST, ROBERT E., 79, S. Ninth St., Minneapolis 2, Minn., 1951, '53\*, '54\*, '56.
- 1951. Putney, F. Johnson, 1719 Rittenhouse Square, Philadelphia 3, Pa., 1951, '52, '53\*, '54, '55, '56.
- 1951. RAWLINS, AUBREY G., 384 Post Street, San Francisco, Calif., 1951, '53\*, '56.
- 1934. RICHARDS, LYMAN GILDER, Massachusetts Institute of Technology, Cambridge 39, Mass., 1934, '35, '36\*, '37, '38, '39, '47, '49, '51\*, '54, '56, '57\*.
- 1956. RICHARDSON, JOHN ROBERT, 403 Commonwealth Avenue, Boston 15, Massachusetts, 1957.
- 1945. Robb, James M., 633 David Whitney Building, Detroit 26, Michigan, 1946, '48, '49\*, '51, '52, '55, '56, '57.
- 1953. ROBERTS, SAM E., 5964, Overhill Road, Kansas City, Missouri, 1953, '54\*, '55, '56, '57.
- 1938. SALINGER, SAMUEL, 1260 Alejo Road, Palm Springs, California, 1938, '39, '40\*, '42, '44\*, '47, '48, '49, '50, '51, '52\*, '53, '54, '56\*, '57.
- 1932. Schall, Leroy Allen, 243 Charles Street, Boston 14, Massachusetts, 1934\*, '35, '38, '40\*, '41, '42, '44\*, '46, '47, '48\*, '49, '50\*, '51, '53\*, '54, '55, '56, '57\*.

- 1934. SCHENCK, HARRY P., 326 South 19th Street, Philadelphia 3, Pennsylvania, 1934, '35, '36\*, '37, '38, '39, '40, '41\*, '44\*, '46, '47, '49, '50, '51, '52, '53, '54, '55, '56, '57.
- 1939. SIMPSON, W. LIKELY, 512 Physicians' and Surgeons' Building, Memphis 3, Tennessee, 1939, '41, '44\*, '46, '47\*, '48, '50, '51\*, '52, '53, '54, '55, '57.
- 1950. SMITH, AUSTIN T., 1830 Spruce St., Philadelphia 3, Pa., 1950, '51, '52, '53, '55, '56, '57.
- 1954. Sooy, Francis A., 490 Post Street, San Francisco 2, Calif., 1954, '56\*.
- 1947. Theobald, Walter H., 307 N. Michigan Avenue, Chicago, Illinois, 1947, '48\*, '49, '50, '51, '52, '53, '54, '55, '56, '57.
- 1954. THORNELL, WILLIAM C., 2508 Auburn Avenue, Cincinnati 19, Ohio, 1955\*, '57.
- 1950. TREMBLE, G. EDWARD, 1390 Sherbrooke St. W., Montreal, Quebec, Canada, 1950, '51, '52, '53, '54, '55\*, '56, '57.
- 1943. VAN ALYEA, OLIVER E., 135 South LaSalle Street, Chicago 3, Illinois, 1944, '46\*, '47, '48, '50, '51, '52\*, '53, '54, '55, '56\*, '57.
- 1941. VIOLÉ, PIERRE P., 1930 Wilshire Boulevard, Los Angeles 3, California, 1944\*, '46, '47, '50, '52, '53, '55.
- 1954. Walsh, Theodore E., 640 S. Kingshighway Blvd., St. Louis 10, Missouri, 1954, '55\*, '56, '57.
- 1940. WEILLE, FRANCIS L., 247 Commonwealth Avenue, Boston 16, Massachusetts, 1940, '41, '42, '44, '46\*, '47, '48, '49, '50, '51, '52, '53, '54, '55, '56\*, '57.
- 1948. WHALEN, EDWARD J., 750 Main Street, Hartford, Connecticut, 1948, '50, '51, '52, '54, '55, '57.
- 1953. WILKERSON, WILLIAM WESLEY, JR., 1028 Bennie Dillon Building, Nashville, Tennessee, 1953, '54, '55, '57\*.
- 1948. WILLIAMS, HENRY L., 2nd, Mayo Clinic, Rochester, Minnesota, 1948, '49, '50\*, '51, '52\*, '53, '54, '55, '56, '57.

- 1942. WISHART, D. E. STAUNTON, 170 St. George Street, Toronto, Canada, 1942, '44, '46, '47\*, '49, '51, '52\*, '53, '55, '56, '57.
- 1951. Woodman, DeGraaf, 156 E. 37th Street, New York 16, N. Y., 1951, '53, '54, '55\*, '56.
- 1953. Work, Walter P., 384 Post Street, San Francisco 8, California, 1953, '54, '56.

### Honorary Fellows

- 1957. (1925) CLERF, LOUIS H., 5575 Eighth Avenue, North, St. Petersburg 2, Florida, 1957.
- 1949. (1917) Coates, George M., 1721 Pine Street, Philadelphia 3, Pa., 1949\*, '51, '52, '54, '56, '57.
- 1957. (1923) FENTON, RALPH ALBERT, 1020 S.W. Taylor Street, Portland 5, Oregon.
- 1939. (1907) Jackson, Chevalier, Schwenksville, Pennsylvania, 1939\*, '40\*.
- 1943. (1918) Lewis, Fielding O., Providence Road, Media, Pennsylvania.
- 1937. NAGER, F. B., Freiestrasse 30, Zurich, Switzerland.
- 1957. (1930) Negus, Sir Victor E., 149 Harley Street, London, W 1, England, 1957\*.
- 1957. (1924) Proetz, Arthur Walter, 12 Westmoreland Place, St. Louis 8, Missouri, 1957.

## Corresponding Fellows

- 1946. ALONSO, JUSTO M., Mercedes 1233, Montevideo, Uruguay.
- 1942. Batson, Oscar V., 133 South Thirty-sixth Street, Philadelphia 4, Pennsylvania, 1942\*, '54\*.
- 1943. Eggston, Andrew O., 653 Park Avenue, New York, N. Y., 1944, '49, '55.
- 1957. Huizinga, Eelco, Noorderhaven 7, Groningen, The Netherlands, 1957.

- 1950. Larsell, Olof, University of Oregon Medical School, Portland, Oregon, 1950\*.
- 1921. Le Maitre, Fernand, Avenue Victor Hugo, 120 (XVI), Paris, France.
- 1957. Ono, Jo, 75 Zaimoku-cho, Azabu, Minato-ku, Tokyo, Japan, 1957.
- 1937. Portmann, Georges, 25 bis Cours de Verdun, Bordeaux, France, 1947.
- 1957. RUEDI, LUZIUS, Ramistrasse 100, Zurich, Switzerland, 1957.
- 1924. Schaefer, J. Parsons, 4634 Spruce Street, Philadelphia 39, Pennsylvania, 1934.
- 1952. Tapia Acuna, Ricardo, Napoles 9, Mexico 6, D. F., Mex., 1953, '57.
- 1936. VIALLE, JACQUES, 27 Rue de France, Nice (Alpes Maritimes), France.

#### Emeritus Fellows

- 1941. (1923) Barlow, Roy A., Musquodoboit Harbor, Nova Scotia, Canada.
- 1951. (1944) BEATTY, HUGH G., 150 E. Broad St., Columbus 15, Ohio, 1951, '52, '53.
- 1946. (1933) Foster, John H., Eagle Lake, Texas, 1948, '49, '50, '51, '52.
- 1955. (1940) GATEWOOD, E. TRIBLE, Professional Building, Richmond, Virginia.
- 1951. (1928) GITTINS, THOMAS R., 408 Davidson Bldg., Sioux City, Iowa.
- 1936. (1898) GOODALE, JOSEPH L., Argilla Road, Ipswich, Massachusetts.
- 1957. (1944) HAVENS, FRED Z., 102 Second Avenue S.W., Rochester, Minnesota.

- 1955. (1930) Houser, Karl M., 2035 Delancey Street, Philadelphia 3, Pennsylvania.
- 1951. (1928) Jarvis, DeForest C., Quarry Bank Bldg., Barre, Vt., 1952.
- 1956. (1939) JOHNSTON, WILLIAM HOWARD, 1515 State Street, Santa Barbara 7, California, 1957.
- 1954. (1921) KERNAN, JOHN D., JR., 103 East Seventy-eighth Street, New York 21, N. Y.
- 1953. (1922) LILLIE, HAROLD I., Mayo Clinic, Rochester, Minnesota.
- 1954. (1927) Lukens, Robert M., 1308 W. Hunting Park Ave. nue, Philadelphia 40, Pa.
- 1954. (1928) Macpherson, Duncan, 2350 Broadway, New York 24, N. Y.
- 1957. (1951) McCart, Howard W. D., 170 St. George Street, Toronto 5, Ont., Canada.
- 1948. (1939) Myers, John Llewellyn, 1115 Grand Avenue, Kansas City, Missouri.
- 1957. (1948) PHELPS, KENNETH A., 1137 Medical Arts Building, Minneapolis 2, Minnesota.
- 1940. (1923) SEWALL, EDWARD C., 430 El Escarpado, Stanford University, California.
- 1954. (1930) SEYDELL, ERNEST M., First National Bank Building, Wichita, Kansas, 1957.
- 1948. (1923) Spencer, Frank R., 429 Pine St., Boulder, Colorado.
- 1956. (1925) Tucker, Gabriel, 429 Montgomery Avenue, Haverford, Pennsylvania.
- 1950. (1922) WHITE, FRANCIS W., 471 Park Avenue, New York 22, N. Y.
- 1951. (1935) WOODWARD, FLETCHER D., 104 E. Market St., Charlottesville, Va.

## BENEFACTORS

Dr. ARTHUR W. DEROALDES

DR. WILLIAM E. CASSELBERRY

Dr. Samuel Johnston

Dr. Cornelius G. Coakley

Dr. John F. Barnhill

Dr. James E. Newcomb

Dr. Lee Wallace Dean

Dr. George E. Hourn

Dr. Burt R. Shurly

# BENEFACTORS OF THE LARYNGOLOGICAL RESEARCH FUND

Dr. John F. Barnhill

Dr. and Mrs. Lee Wallace Dean

Dr. GORDON BERRY

Dr. Frederick T. Hill

Dr. and Mrs. George E. Hourn

Dr. Samuel Salinger

Dr. H. Marshall Taylor

Dr. Louis H. Clerf

Mr. Lester T. Sunderland

Dr. WILLIAM E. GROVE

DR. BURT R. SHURLY

Dr. Henry B. Orton



## Obverse of the deRoaldes medal

## RECIPIENTS OF THE DEROALDES AWARD

- 1928. Dr. Chevalier Jackson
- 1931. Dr. D. Bryson Delavan
- 1934. Dr. Harris P. Mosher
- 1937. Dr. LEE WALLACE DEAN
- 1943. Dr. Ralph A. Fenton
- 1949. Dr. George M. Coates
- 1951. Dr. Arthur W. Proetz
- 1954. Dr. Louis H. Clerf

#### RECIPIENTS OF THE CASSELBERRY AWARD

- 1923. Dr. George Fetterolf and Dr. Herbert Fox
- 1928. Dr. Ralph A. Fenton and Dr. O. Larsell
- 1929. Dr. Richard A. Kern and Dr. Harry P. Schenck
- 1929. Dr. EDWARD H. CAMPBELL
- 1931. Dr. ARTHUR W. PROETZ
- 1934. Dr. Anderson C. Hilding
- 1936. Dr. Francis E. LeJeune: Dr. Joel J. Pressman
- 1939. Dr. H. Marshall Taylor: Dr. Brien T. King
- 1940. Dr. French K. Hansel
- 1941. Dr. Noah D. Fabricant
- 1946. Dr. PAUL H. HOLINGER
- 1949. Dr. Henry B. Orton

## RECIPIENTS OF THE NEWCOMB AWARD

- 1941. Dr. Burt R. Shurly
- 1942. Dr. Francis R. Packard
- 1943. Dr. George M. Coates
- 1944. Dr. Charles J. Imperatori
- 1947. Dr. Harris P. Mosher
- 1948. Dr. Gordon Berry
- 1949. Dr. Gordon B. New
- 1950. Dr. H. Marshall Taylor
- 1951. Dr. John D. Kernan
- 1952. Dr. WILLIAM J. McNALLY
- 1953. Dr. Frederick T. Hill
- 1954. Dr. Henry B. Orton
- 1955. Dr. THOMAS C. GALLOWAY
- 1956. Dr. Dean M. Lierle
- 1957. Dr. Gordon F. Harkness

## PAST OFFICERS

## Presidents

## (Year of Election)

| 1879. | Louis Elsberg      | 1909. | J. E. Logan            |
|-------|--------------------|-------|------------------------|
| 1880. | J. Solis-Cohen     | 1910. | D. Braden Kyle         |
| 1881. | F. I. Knight       | 1911. | James E. Newcomb       |
| 1882. | G. M. Lefferts     | 1912. | George A. Leland       |
| 1883. | F. H. Bosworth     | 1913. | Thomas Hubbard         |
| 1884. | E. L. Shurly       | 1914. | Alexander W. MacCoy    |
| 1885. | Harrison Allen     | 1915. | G. Hudson Makuen       |
| 1886. | E. Fletcher Ingals | 1916. | Joseph L. Goodale      |
| 1887. | R. P. Lincoln      | 1917. | Thomas H. Halstead     |
| 1888. | E. C. Morgan       | 1918. | Cornelius G. Coakley   |
| 1889. | J. N. Mackenzie    | 1919. | Norval H. Pierce       |
| 1890. | W. C. Glasgow      | 1920. | Harris P. Mosher       |
| 1891. | S. W. Langmaid     | 1921. | Harmon Smith           |
| 1892. | M. J. Asch         | 1922. | Emil Mayer             |
| 1893. | D. Bryson Delavan  | 1923. | J. Payson Clark        |
| 1894. | J. O. Roe          | 1924. | Lee Wallace Dean       |
| 1895. | W. H. Daly         | 1925. | Greenfield Sluder      |
| 1896. | C. H. Knight       | 1926. | Chevalier Jackson      |
| 1897. | T. R. French       | 1927. | D. Bryson Delavan      |
| 1898. | W. E. Casselberry  | 1928. | Charles W. Richardson  |
| 1899. | Samuel Johnston    | 1929. | Lewis A. Coffin        |
| 1900. | H. L. Swain        | 1930. | Francis R. Packard     |
| 1901. | J. W. Farlow       | 1931. | George E. Shambaugh    |
| 1902. | J. H. Bryan        | 1932. | George Fetterolf       |
| 1903. | J. H. Hartman      | 1933. | George M. Coates       |
| 1904. | C. C. Rice         | 1934. | Dunbar Roy             |
| 1905. | J. W. Gleitsman    | 1935. | Burt R. Shurly         |
| 1906. | A. W. deRoaldes    | 1936. | William B. Chamberlain |
| 1907. | H. S. Birkett      | 1937. | John F. Barnhill       |
| 1908. | A. Coolidge, Jr.   | 1938. | George B. Wood         |
|       |                    |       |                        |

| 1939. James A. Babbitt        |       | Gordon B. New      |
|-------------------------------|-------|--------------------|
| 1940. Gordon Berry            |       | H. Marshall Taylor |
| 1941. Thomas E. Carmody       |       | Louis H. Clerf     |
| 1942-3. Charles J. Imperatori |       | Gordon F. Harkness |
| 1944-5. Harold I. Lillie      |       | Henry B. Orton     |
| 1946. Frank R. Spencer        | 1955. | Bernard J. McMahon |
| 1947. Arthur W. Proetz        |       | LeRoy A. Schall    |
| 1948. Frederick T. Hill       | 1957. | Harry P. Schenck   |
| 1949. Ralph A. Fenton         |       |                    |
|                               |       |                    |

## Vice-Presidents

| F. H. Davis     |   |
|-----------------|---|
| W. C. Glasgow   | J. O. Roe   |
| E. L. Shurly    | W. Porter   |
| C. Seiler       | E. F. Ingals  |
| S. W. Langmaid  | S. Johnston   |
| J. H. Hartman   | W. H. Daly  |
| H. A. Johnson   | G. W. Major   |
| E. C. Morgan    | J. N. Mackenzie   |
| J. N. Mackenzie | S. W. Langmaid  |
| W. C. Glasgow   | C. E. DeM. Sajous   |
| 11              | C. E. Bean  |
| J. O. Roe       | J. H. Hartman   |
|                 | S. Johnston   |
|                 | J. C. Mulhall   |
|                 | W. E. Casselberry   |
|                 | S. H. Chapman   |
|                 | A. W. deRoaldes   |
|                 | D. N. Rankin  |
|                 | H. S. Birkett   |
|                 | F. W. Hinkel  |
|                 | M. R. Brown   |
|                 | A. A. Bliss   |
|                 | D. Braden Kyle  |
| G. A. Leland    | T. Melville Hardie  |
|                 | W. C. Glasgow E. L. Shurly C. Seiler S. W. Langmaid J. H. Hartman H. A. Johnson E. C. Morgan J. N. Mackenzie W. C. Glasgow E. Holden J. O. Roe M. J. Asch S. Johnston J. C. Mulhall C. C. Rice J. Wright T. M. Murray A. W. MacCoy J. W. Farlow T. A. DeBlois H. L. Wagner J. W. Gleitsmann |

| 1903. | J. H. Lowman          | W. Peyre Porcher    |
|-------|-----------------------|---------------------|
| 1904. | Thomas Hubbard        | W. J. Freeman       |
| 1905. | J. L. Goodale         | C. W. Richardson    |
| 1906. | G. H. Makuen          | A. B. Thrasher      |
| 1907. | J. P. Clark           | J. E. Rhodes        |
| 1908. | E. Mayer              | F. R. Packard       |
| 1909. | C. G. Coakley         | H. P. Mosher        |
| 1910. | Robert C. Myles       | J. M. Ingersoll     |
| 1911. | F. C. Cobb            | B. R. Shurly        |
| 1912. | A. W. Watson          | W. Scott Renner     |
| 1913. | F. E. Hopkins         | Geo. F. Shambaugh   |
| 1914. | Clement T. Theisen    | Lewis A. Coffin     |
| 1915. | J. Gordon Wilson      | Christian R. Holmes |
| 1916. | Thomas H. Halsted     | Greenfield Sluder   |
| 1917. | John Edwin Rhodes     | D. Crosby Greene    |
| 1918. | G. E. Shambaugh       | John R. Winslow     |
| 1919. | Francis R. Packard    | Harmon Smith        |
| 1920. | Harmon Smith          | W. B. Chamberlin    |
| 1921. | Dunbar Roy            | Robert C. Lynch     |
| 1922. | George Fetterolf      | Lorenzo B. Lockard  |
| 1923. | Hubert Arrowsmith     | Joseph B. Greene    |
| 1924. | Ross H. Skillern      | Gordon Berry        |
| 1925. | John E. Mackenty      | Robert Levy         |
| 1926. | Lewis A. Coffin       | William V. Mullin   |
| 1927. | Charles W. Richardson | Hill Hastings       |
| 1928. | Robert Clyde Lynch    | Francis P. Emerson  |
| 1929. | William B. Chamberlin | Ralph Albert Fenton |
| 1930. | Harris P. Mosher      | James A. Babbitt    |
| 1931. | Joseph B. Greene      | E. Ross Faulkner    |
| 1932. | Gordon Berry          | Frank A. Spencer    |
| 1933. | E. Ross Faulkner      | Thomas S. Carmody   |
| 1934. | Gordon B. New         | Samuel McCullagh    |
| 1935. | Edward C. Sewall      | H. Marshall Taylor  |

Harold I. Lillie

Bernard J. McMahon

1936. William P. Wherry

1937. Frank R. Spencer

| 1938.  | Ralph A. Fenton    | Frederick T. Hill    |
|--------|--------------------|----------------------|
| 1939.  | John H. Foster     | Thomas R. Gittins    |
| 1940.  | Charles H. Porter  | Gordon F. Harkness   |
| 1941.  | Arthur W. Proetz   | Henry B. Orton       |
| 1942-3 | . Harold I. Lillie | Dean M. Lierle       |
| 1944-5 | . John J. Shea     | Thomas C. Galloway   |
| 1946.  | H. Marshall Taylor | C. Stewart Nash      |
| 1947.  | John J. Shea       | Frederick A. Figi    |
| 1948.  | Henry B. Orton     | Anderson C. Hilding  |
| 1949.  | LeRoy A. Schall    | Fletcher D. Woodward |
| 1950.  | W. Likely Simpson  | Lyman G. Richards    |
| 1951.  | Wm. J. McNally     | Thomas C. Galloway   |
| 1952.  | J. Mackenzie Brown | Edwin N. Broyles     |
| 1953.  | Claude C. Cody     | Daniel S. Cunning    |
| 1954.  | James H. Maxwell   | Clyde A. Heatly      |
| 1955.  | Robert L. Goodale  | Paul H. Holinger     |
| 1956.  | Henry M. Goodyear  | Robert E. Priest     |
| 1957.  | Francis E. LeJeune | Pierre P. Viole      |
|        |                    |                      |
|        | Connet anice and   | Two acres and        |

#### Secretaries and Treasurers

| 1879. | G. M. Lefferts    | 1895. | H. L. Swain   |
|-------|-------------------|-------|---------------|
| 1882  | D. Bryson Delavan | 1900. | P. E. Newcomb |
| 1889. | C. H. Knight      | 1911. | Harmon Smith  |

# Secretaries

| 1912. | Harmon Smith      | 1939. | Charles J. Imperatori |
|-------|-------------------|-------|-----------------------|
| 1918. | D. Bryson Delavan | 1942. | Arthur W. Proetz      |
| 1919. | J. M. Ingersoll   | 1947. | Louis H. Clerf        |
| 1920. | George M. Coates  | 1952. | Harry P. Schenck      |
| 1933. | William V. Mullin | 1957. | James H. Maxwell      |
| 1935. | Iames A. Babbitt  |       |                       |

## Treasurers

| 1912. | J. Payson Clark  | 1935. | Charles J. Imperatori |
|-------|------------------|-------|-----------------------|
| 1923. | George Fetterolf | 1939. | Frederick T. Hill     |

1932. William V. Mullin1948. Gordon F. Harkness1933. James A. Babbitt1953. Fred W. Dixon

#### Librarians

 1879. F. H. Bosworth
 1930. John F. Barnhill

 1883. T. R. French
 1934. Burt R. Shurly

 1903. J. H. Bryan
 1935. George M. Coates

#### Librarian and Historian

1936. George M. Coates 1944. Louis H. Clerf

# Librarian, Historian and Editor

1947. Harry P. Schenck 1952. Bernard J. McMahon 1955. Edwin N. Broyles

#### PAST FELLOWS

# Dates indicate original election to the Association

#### \*Deceased

## Honorary Fellows

- \*1908. Barnhill, John F., Miami Beach, Florida.
- \*1893. Birkett, Herbert S., Montreal, Canada.
- \*1878. Bosworth, Francke H., New York City.
- \*1918. Dean, Lee Wallace, St. Louis, Mo.
- \*1881. Delavan, D. Bryson, New York City.
- \*1893. deRoaldes, Arthur W., New Orleans, La.
- \*1890. De La Sota Y. Lastra, Ramon, Seville, Spain.
- \*1879. French, Thomas R., Brooklyn, N. Y.
- \*1880. Garcia, Senior Manuel, London, England.
- \*1903. Harris, Thos. J., New York City.
- \*1878. Johnston, Samuel, Baltimore, Md.
- \*1878. Lefferts, George Morewood, Katonah, N. Y.
- \*1914. Levy, Robert, Denver, Colo.
- \*1883. Mackenzie, John N., Baltimore, Md.
- \*1881. Mackenzie, Sir Morel, London, England.
- \*1910. Masser, Ferdinand, Naples, Italy.
- \*1904. Mosher, Harris P., Marblehead, Mass.
- \*1910. Moure, J. J. E., Bordeaux, France.
- \*1918. Oliver, H. K., Boston, Mass.
- \*1906. Pierce, Norval Harvey, San Diego, Calif.
- \*1909. Semon, Sir Felix, Great Missenden, England.
- \*1878. Solis-Cohen, J., Philadelphia, Pa.
- \*1889. Swain, Henry L., New Haven, Conn.
- \*1914. Thomson, Sir St. Clair, London, Eng.
- \*1903. Tilley, Herbert, London, England.
- \*1914. Wagner, Clinton, New York City.
- \*1890. Wright, Jonathan, Pleasantville, N. Y.

## Corresponding Fellows

- \*1892. Browne, Lennox, London, England.
- \*1938. Blair, Vilray P., St. Louis, Missouri.
- \*1940. Colledge, Lionel, London, England.
- \*1901. Collier, Mayo, Kearsney Abbey, Kent, England.

- \* 1893. Desvernine, Carlos M., Havana, Cuba.
- Emerson, Francis P., Franklin, Mass. \* 1930.
- \*1936. Fraser, John S., Edinburgh, Scotland.
- \*1901. Grant, Sir James Dundas, London, England.
- \*1887. Cougenheim, A., Paris, France. Holden, Edgar, Newark, N. I. \*1894.
- \*1919. Kelly, Adam Brown, Helensburgh, Scotland.
- \*1881. Labus, Carlo, Milan, Italy.
- \*1931. LasSagna, Francesco, Parma, Italy.
- \* 1926. Law, Frederick M., New York, N. Y.
- \* 1902. Lermoyez, Marcel, Paris, France.
- Luc, H., Paris, France. \*1897.
- \*1896. MacDonald, Greville, Haslemere, Surrey, England.
- \*1894. MacIntyre, John, Glasgow, Scotland.
- \* 1903. McBride, P., York, England.
- \* 1920. McKenzie, Dan, London, England.
- \*1919. McKernon, James F., New Canaan, Conn.
- Meyer, Wilhelm, Copenhagen, Denmark. \*1880.
- \*1910. Moure, J. J. E., Bordeaux, France.
- \*1896. Mygind, Holger, Copenhagen, Denmark.
- \*1950. Neil, James Hardie, Auckland, New Zealand.
- \*1919. Paterson, Donald Rose, Cardiff, Wales.
- \*1941. Patterson, Norman, Herts, England.
- \*1919. Rogers, John, Ir., New York City.
- Sajous, C. E. DeM., Philadelphia, Pa. \* 1894.
- \*1896. Schmiegelow, Ernst, Copenhagen, Denmark.
- \*1946. Segura, Eliseo, Buenos Aires, Argentina.
- \*1940. Soto, E. Fernandez, Havana, Cuba.
- \*1881. Thornton, Pugin, London, England.
- \*1913. Turner, A. Logan, Edinburgh, Scotland.
- \*1880. Whistler, W. McNeil, London, England.
- \*1901. Wingrave, Wyatt, Lyme Regis, Dorset, England.
- \*1894. Wolfenden, R. Norris, Kent, England.

# Emeritus Fellows

- \*1915. Barnes, Harry Aldrich, Kingston, Mass.
- \*1928. Beck, Joseph C., Chicago, Illinois.
- Berry, Gordon, Worcester, Mass. \*1921.
- \*1901. Brown, J. Price, Toronton, Canada.
- \*1891. Bryan, Joseph H., Washington, D. C.

\*1913. Butler, Ralph, Philadelphia, Pa.

\*1897. Clark, J. Payson, Boston, Mass.

\*1899. Cobb, Frederick C., Bradenton, Florida.

\*1905. Coffin, Lewis A., New York City.

\*1893. Coolidge, Algernon, Boston, Mass.

\*1937. Crowe, Samuel J., Baltimore, Maryland.

\*1913. Dabney, Virginius, Washington, D. C.

\*1882. De Blois, Thomas Amory, Boston, Mass.

\*1892. Farlow, John W., Boston, Mass.

\*1922. Forbes, Henry H., New York City.

\*1905. Freer, Otto T., Chicago, Ill.

\*1880. Gleitsmann, Joseph W., New York City.

\*1922. Goldsmith, Perry G., Toronto, Canada.

\*1932. Graham, Harrington B., San Francisco, California.

\*1906. Greene, D. Crosby, Jr., Boston, Mass.

\*1917. Greene, Joseph B., Asheville, N. C.

\*1905. Halsted, Thomas H., Los Angeles, Calif.

\*1896. Hardie, Thomas Melville, Chicago, Ill.

\*1915. Hastings, Hill, Los Angeles, Calif.

\*1888. Hinkel, Frank Whitehill, Buffalo, New York.

\*1895. Hopkins, Frederick E., Springfield, Mas.

\*1927. Hubbard, Thomas, Toledo, Ohio.

\*1919. Hurd, Lee Maidment, Rowayton, Conn.

\*1920. Imperatori, Charles J., Essex, N. Y.

\*1904. Ingersoll, John Marvin, Miami, Fla.

\*1918. Kenyon, Elmer L., Chicago, Ill.

\*1929. Kistner, Frank B., Portland, Oregon.

\*1885. Knight, Charles H., New York City.

\*1939. Large, Secord H., Cleveland, Ohio.

\*1894. Leland, George A., Boston, Mass.

\*1943. Lincoln, William R., Cleveland, Ohio.

\*1928. Lyman, Harry Webster, St. Louis, Mo.

\*1886. MacCoy, Alexander W., Philadelphia, Pa.

\*1896. Mayer, Emil, New York City.

\*1943. McCullagh, Samuel, New York, N. Y.

\*1923. McKinney, Richmond, Memphis, Tenn.

\*1922. New, Gordon B., Rochester, Minn.

\*1878. Porter, William, Ocean Springs, Miss.

\*1901. Myles, Robert C., New York City.

\*1923. Newhart, Horace, Minneapolis, Minn.

\*1903. Packard, Francis R., Philadelphia, Pa.

- \*1942. Potts, John B., Omaha, Nebr.
- \*1903. Renner, W. Scott, Buffalo, N. Y.
- \*1897. Rhodes, John Edwin, Chicago, Ill.
- \*1884. Rice, Clarence C., New York City.
- \*1905. Richards, George L., South Yarmouth, Mass.
- \*1878. Robinson, Beverly, New York City.
- \*1921. Sauer, William E., St. Louis, Mo.
- \*1907. Shambaugh, George E., Chicago, Ill.
- \*1908. Smith, Harmon, New York City.
- \*1927. Tobey, Harold G., Boston, Mass.
- \*1892. Wagner, Henry L., San Francisco, Calif.
- \*1892. Watson, Arthur W., Philadelphia, Pa.
- \*1939. Wilson, J. Gordon, Old Bennington, Vt.
- \*1905. Wood, George B., Wynnewood, Pa.

#### Active Fellows

- \*1880. Allen, Harrison, Philadelphia, Pa.
- \*1917. Arrowsmith, Hubert, Brooklyn, N. Y.
- \*1879. Asch, Morris J., New York City.
- \*1923. Babbitt, James A., Philadelphia, Pa.
- \*1906. Ballenger, William L., Chicago, Ill.
- \*1880. Bean, C. E., St. Paul, Minn.
- \*1904. Berens, T. Passmore, New York City.
- \*1924. Bigelow, Nolton, Providence, R. I.
- \*1893. Bliss, Arthur Ames, Philadelphia, Pa.
- \*1895. Boylan, J. E., Cincinnati, Ohio.
- \*1932. Brown, John Mackenzie, Los Angeles, Calif.
- \*1892. Brown, Moreau R., Chicago, Ill.
- \*1933. Buckley, Robert E., New York City.
- \*1915. Canfield, R. Bishop, Ann Arbor, Mich.
- \*1934. Carmack, John Walter, Indianapolis, Ind
- \*1924. Carmody, Thomas E., Denver, Colo.
- \*1889. Casselberry, William E., Chicago, Ill.
- \*1883. Chamberlain, C. W., Hartford, Conn.
- \*1917. Chamberlin, William B., Cleveland, Ohio.
- \*1896. Chappell, W. F., New York City.
- \*1882. Chapman, S. Hartwell, New Haven, Conn.
- \*1902. Coakley, Cornelius G., New York City.
- \*1913. Coffin, Rockwell C., Boston, Mass.
- 1918. Cox, Gerald H., New York City.

\*1880. Cushing, E. W., Boston, Mass.

\*1878. Cutter, Ephraim, West Falmouth, Mass.

\*1880. Daly, W. H., Pittsburgh, Pa.

\*1878. Davis, F. H., Chicago, Ill.

\*1941. Davis, Warren B., Philadelphia, Pa.

1926. Dennis, Frank Lownes, Colorado Springs, Col.

\*1901. Dickerman, E. T., Chicago, Ill.

\*1878. Donaldson, Frank, Baltimore, Md.

\*1947. Engler, Clarence W., Cleveland, Ohio.

\*1935. Eves, Curtis C., Philadelphia, Pa.

\*1919. Faulkner, E. Ross, New York City.

\*1914. Fetterolf, George, Philadelphia, Pa.

\*1901. Freeman, Walter J., Philadelphia, Pa.

\*1917. Friedberg, Stanton A., Chicago, Ill.

1940. Fuchs, Valentine H., New Orleans, La.

1909. Getchell, Albert C., Worcester, Mass.

\*1897. Frothingham, Richard, New York City.

\*1907. Gibb, Joseph S., Philadelphia, Pa.

\*1940. Gill, William D., San Antonio, Texas.

\*1878. Glasgow, William Carr, St. Louis, Mo.

\*1913. Goldstein, Max A., St. Louis, Mo.

\*1905. Grayson, Charles P., Philadelphia, Pa.

\*1934. Grove, William E., Milwaukee, Wisconsin

\*1945. Hickey, Harold L., Denver, Colo.

\*1879. Holden, Edgar, Newark, N. J.

\*1907. Holmes, Christian R., Cincinnati, Ohio.

\*1882. Hooper, Franklin H., Boston, Mass.

\*1893. Hope, George B., New York City.

\*1938. Hourn, George E., St. Louis, Mo.

\*1939. Hunt, Westley Marshall, New York, N. Y.

\*1901. Hyatt, Frank, Washington, D. C.

\*1925. Iglauer, Samuel, Cincinnati, Ohio.

\*1878. Ingals, E. Fletcher, Chicago, Ill.

\*1882. Ives, Frank L., New York City.

\*1880. Jarvis, William C., New York City.

\*1878. Johnson, Hosmer A., Chicago, Ill.

\*1879. Johnson, Woolsey, New York City.

\*1944. Jones, Marvin F., New York City.

\*1879. Kealhofer, R. H., St. Louis, Mo.

\*1942. King, Edward D., North Hollywood, Calif.

\*1901. King, Gordon, New Orleans, La.

\*1885. Knight, Charles H., New York City.

\*1878. Knight, Frederick Irving, Boston, Mass.

\*1898. Kyle, D. Braden, Philadelphia, Pa.

\*1880. Langmaid, Samuel W., Boston, Mass.

\*1878. Lincoln, Rufus P., New York City.

\*1911. Lockard, Lorenzo B., Denver, Colo.

\*1913. Loeb, Hanau W., St. Louis, Mo.

\*1897. Logan, James E., Kansas City, Mo.

\*1935. Looper, Edward A., Baltimore, Maryland.

\*1888. Lowman, John H., Cleveland, Ohio.

\*1919. Lynah, Henry L., New York City.

\*1915. Lynch, Robert Clyde, New Orleans, La.

\*1879. McBurney, Charles, New York City.

\*1927. McGinnis, Edwin, Chicago, Ill.

1936. McGregor, Gregor, Toronto, Canada.

\*1913. McKimmie, O. A., Washington, D. C.

\*1945. McLaurin, John G., Dallas, Texas.

\*1885. McSherry, H. Clinton, Baltimore, Md.

\*1914. Mackenty, John E., New York City.

\*1898. Makuen, G. Hudson, Philadelphia, Pa.

\*1881. Major, G. W., Montreal, Canada.

\*1881. Morgan, E. C., Washington, D. C.

\*1950. Morrison, Lewis F., San Francisco, Calif.

\*1886. Mulhall, J. C., St. Louis, Mo.

\*1925. Mullin, William V., Cleveland, Ohio.

\*1914. Munger, Carl E., Waterbury, Conn.

\*1892. Murray, T. Morris, Washington, D. C.

\*1881. Mynter, H., Buffalo, N. Y.

\*1893. Newcomb, James E., New York City.

\*1895. Nichols, J. E. H., New York City.

\*1894. Park, William H., New York City.

\*1892. Porcher, W. Peyre, Charleston, S. C.

\*1927. Porter, Charles T., Boston, Mass.

\*1908. Randall, B. Alexander, Philadelphia, Pa.

\*1882. Rankin, D. N., Allegheny, Pa.

\*1902. Richardson, Charles W., Washington, D. C.

\*1930. Ridpath, Robert E., Philadelphia, Pa.

\*1879. Roe, John O., Rochester, N. Y.

\*1881. Robertson, J. M., Detroit, Mich.

\*1913. Roy, Dunbar, Atlanta, Ga.

\*1878. Rumbold, T. F., St. Louis, Mo.

\*1879. Seiler, Carl, Philadelphia, Pa.

\*1928. Shea, John Joseph, Memphis, Tennessee.

\*1893. Shields, Charles M., Richmond, Pa.

\*1909. Shurly, Burt R., Detroit 1, Mich.

\*1878. Shurly, E. L., Detroit, Mich.

\*1892. Simpson, William Kelly, New York City.

\*1919. Skillern, Ross H., Philadelphia, Pa.

\*1909. Sluder, Greenfield, St. Louis, Mo.

\*1879. Smith, Andrew H., Geneva, N. Y.

\*1932. Smyth, Duncan Campbell, Boston, Mass.

\*1928. Sonnenschein, Robert, Chicago, Ill.

1924. Stein, Otto J., Chicago, Ill.

1934. Stevenson, Walter, Quincy, Ill.

\*1911. Staut, George C., Philadelphia, Pa.

\*1879. Tauber, Bernhard, Cincinnati, Ohio.

\*1924. Taylor, Hermon Marshall, Jacksonville, Fla.

\*1903. Theisen, Clement F., Albany, N. Y.

\*1899. Thorner, Max, Cincinnati, Ohio.

\*1892. Thrasher, Allen B., Cincinnati, Ohio.

\*1937. Tobey, George L., Jr., Boston, Mass.

\*1888. Van der Poel, S. O., New York City.

\*1938. Vail, Harris H., Cincinnati, Ohio.

\*1936. Voislawsky, Antonie P., New York City.

\*1933. Wanamaker, Allison T., Seattle, Wash.

1896. Ward, Marshall R., Pittsburgh, Pa.

\*1879. Ward, Whitfield, New York City.

\*1886. Westbrook, Benjamin F., Brooklyn, N. Y.

\*1924. Wherry, William P., Omaha, Neb.

\*1924. White, Leon E., Boston, Mass.

\*1939. Williams, Horace J., Philadelphia, Pa.

\*1922. Wishart, David J. G., Toronto, Ontario.

\*1940. Wood, V. Visscher, St. Louis, Mo.

\*1896. Wollen, Green V., Indianapolis, Ind.





