1975 ANNUAL MEETING PROGRAM

Back to all Annual Meeting Programs

COMMITTEES

Back to Annual Meeting Program

The American Association for Thoracic Surgery
1974 - 1975

President **Wilfred G. Bigelow,** *Toronto*
Vice-president **David J. Dugan,** *Oakland, Calif.*
Secretary **Myron W. Wheat, Jr.,** *Louisville, Ky.*
Treasurer **James R. Malm,** *New York City, N. Y.*
Editor **Brian Blades,** *Washington, D. C.*
Council **Lyman A. Brewer, III** (1975), *Los Angeles*
John W. Kirklin(1975), *Birmingham, Ala.*
William S. Blakemore (1976), *Toledo, Ohio*
J. Gordon Scannell (1977), *Boston, Mass.*
John E. Connolly (1978), *Irvine, Calif.*
Membership Committee **Benson B. Roe,** *Chairman, San Francisco*
Bert W. Meyer, *Los Angeles*
David B. Skinner, *Chicago*
John L. Ochsner, *New Orleans*
Alan S. Trimble, *Toronto*
Richard R. Lower, *Richmond*
John A. Waldhausen, *Hershey*
Association representatives **Herbert Sloan,** *Ann Arbor, Mich.*
The American Board of **Will C. Sealy,** *Durham, N. C.*
Thoracic Surgery **Benson B. Roe,** *San Francisco*
W. Sterling Edwards, *Albuquerque, N. M*
Board of Governors, **G. Rainey Williams** (1975), *Oklahoma City*
American College of Surgeons **Henry T. Bahnson** (1976), *Pittsburgh, Pa.*

ANNUAL MEETING COMMITTEES

LOCAL ARRANGEMENTS

Frank C. Spencer, Chairman
Edward J. Beattie, Jr.
Walter W. Fischer
Robert W. M. Prater
Cranston W. Holman
Alfred Jaretzki, III
Paul A. Kirschner
Adrian Lambert
Robert S. Litwak
James R. Malm
Thomas F. Nealon, Jr.
Keith Reemtsma
George Robinson
Philip N. Sawyer
Walter A. Wichern, Jr.
William I. Wolff

PROJECTION

Edward J. Beattie, Jr., Chairman Frederick O.
Bowman, Jr.
Arthur D. Boyd Robert W. M. Prater
Paul H. Gerst
Stanley Giannelli, Jr.
Adrian Lambert
S. Frank Redo
George E. Reed
Philip N. Sawyer
Frank J. Veith
Sigmund A. Weselowski

PRESS

Thomas F. Nealon, Jr., Chairman
Arthur D. Boyd Cranston W. Holman
Paul A. Kirschner
Walter A. Wichern, Jr.
William I. Wolff

LADIES

Mrs. Frank C. Spencer, Chairman
Mrs. Edward J. Beattie, Jr.
Mrs. Arthur D. Boyd
Mrs. James R. Malm
Mrs. Thomas F. Nealon, Jr.
Mrs. Keith Reemtsma
Mrs. George Robinson

COMMITTEES

Back to Annual Meeting Program

ANNUAL MEETING COMMITTEES

LOCAL ARRANGEMENTS

Frank C. Spencer, Chairman
Edward J. Beattie, Jr.
Walter W. Fischer
Robert W. M. Prater
Cranston W. Holman
Alfred Jaretzki, III
Paul A. Kirschner
Adrian Lambert
Robert S. Litwak
James R. Malm
Thomas F. Nealon, Jr.
Keith Reemtsma
George Robinson
Philip N. Sawyer
Walter A. Wichern, Jr.
William I. Wolff

PROJECTION

Edward J. Beattie, Jr., Chairman
Frederick O. Bowman, Jr.
Arthur D. Boyd
Robert W. M. Prater
Paul H. Gerst
Stanley Giannelli, Jr.
Adrian Lambert
S. Frank Redo
George E. Reed
Philip N. Sawyer
Frank J. Veith
Sigmund A. Weselowski

PRESS

Thomas F. Nealon, Jr., Chairman
Arthur D. Boyd Cranston W. Holman
Paul A. Kirschner
Walter A. Wichern, Jr.
William I. Wolff

LADIES

Mrs. Frank C. Spencer, Chairman
Mrs. Edward J. Beattie, Jr.
Mrs. Arthur D. Boyd
Mrs. James R. Malm
Mrs. Thomas F. Nealon, Jr.
Mrs. Keith Reemtsma
Mrs. George Robinson

MONDAY MORNING, APRIL 14, 1975

Back to Annual Meeting Program

American Association for Thoracic Surgery

55th Annual Meeting

Scientific Program

MONDAY MORNING, APRIL 14, 1975

8:30 A.M. Business Session (Limited to Members) Imperial Ballroom

8:45 A.M. Scientific Session Imperial Ballroom

1. Evidence That Revascularization by Ventricular Internal Mammary Artery Implants Increases Longevity-Twenty-Three Year Follow-Up

ARTHUR M. VINEBERG, Montreal, Canada

Relief of anginal pain by ventricular internal mammary artery implants was originally our objective. In the past 24 years we have documented 93 cases with patent arteries forming mammary coronary anastomoses, of which 12 were living on their mammary artery implants only. Bigelow, Hooper and Effler have reported similar cases. This we consider is objective evidence of the value of revasculariza-tion surgery. Some of these cases will be shown.

Further evidence of the value has been reversal of chronic left ventricular failure following mammary artery implants. Throughout the years we have reported a progressive number of cases which now totals 89 in which 67% have had chronic left ventricular failure successfully reversed. Details of these cases will be presented.

In addition we would like to present proof of longevity following ventricular mammary artery implants. We have surveyed 65 cases of which 47 have been followed up to 23 years. Operative mortality-4 (6%), late deaths-23, these cases lived 2 - 17½ years, average survival 8 years, improvement-78%. Of the 47 cases 20 were still living at time of survey from 2.5 - 20 years, average survival 12 years, with 91% improvement. In this group 19 internal mammary arteries were studied, 17 (88%) showed mammary coronary anastomoses. In 6 (35%) the mammary artery was the only artery open in the heart from 3.5 - 17½ years averaging 7.8 years, after implantation. Details to be given.

Another series of 42 patients with triple and quadruple coronary artery main stem disease that underwent right and left ventricular internal mammary artery implants have been surveyed. The time after surgery averaged 5 years. Operative deaths-1 (2.4%), late deaths-3 (7.1%). Thirty-eight (90.5%) survived an average of 5 years. Details to be given. This series can be compared with Humphries series of 47 patients known to have triple coronary artery disease that were treated medically. There were only 25 patients (53%) that were alive at the end of 5 years.

2. Myocardial Scintography - Post Vineberg Study

F. R. BEGG*, M. H. ADATEPE*, M. I. SALVOZA*,

and G. J. MAGOVERN, Pittsburgh, Pennsylvania

In order to assess the late results (3-5 yrs.) of Vineberg Implants, tracer microspheres (TM^{99c})were injected into the internal mammary artery implants of seven patients after selective contrast visualization. The arteriographic findings were classified as 1) open - communication with the coronary arteries 2) open -no communication with the coronary arteries 3) closed. The myocardial scinto-grams were recorded in four positions - PA, LAO, RAO and Left Lateral. For comparison, direct visualization plus myocardial scintography were performed on patients with patent saphenous vein and internal mammary artery grafts.

Areas of perfusion demonstrated by myocardial scanning correlated with the arteriographic findings. Open implants with communication to the coronary arteries produced homogenous densities on myocardial scanning. Open implants with no communication demonstrated small areas of myocardial scanning. Closed implants demonstrated no myocardial perfusion.

Patients with open implants communicating with the coronary arteries were compared to those patients with patent saphenous vein and internal mammary artery grafts. The internal mammary myocardial scintograms demonstrated a wider myocardial distribution of Tracer Microspheres (TM).

We conclude that patent internal mammary implants with communication perfuse the myocardium at the pre-capillary or capillary area as demonstrated by the myocardial distribution of the Tracer Microspheres (TM).

*By invitation

3. Coronary Artery Surgery Improves Survival in Patients with Extensive Coronary Artery Disease

DANIEL J. ULLYOT*, JUDITH WISNESKI*,

ROBERT W. SULLIVAN* and EDWARD W. GERTZ*,

San Francisco, California

Sponsored by Benson B. Roe, San Francisco, California

Survival in patients with ischemic heart disease is closely related to the extent of coronary artery obstruction as determined angiographically.

One hundred forty-nine consecutive patients underwent coronary artery bypass surgery from November 1971 to October 1974. There was one hospital death, two late non-cardiac deaths, and one late cardiac death giving an operative mortality of 0.7% and a total mortality of 2.6%. The coronary angiograms were scored according to the method of Friesinger, Page and Ross. Fifty-two percent (77/149) had scores of ten or greater. Survival was analyzed according to the life table technique.

The cumulative survival at three years in the 77 operated patients with scores of ten or greater was .98. Friesinger's 46 non-operated patients with similar angiographic scores had a 3 year cumulative survival of .66.

Although this study compares different groups, the surgical series was composed of older patients (mean age 51 c.f. 41) and includes 36 patients operated on for pre-infarction angina pectoris.

These data suggest that coronary artery bypass surgery can favorably influence prognosis in patients with severe coronary artery disease.

4. Selection of Coronary Bypass: Anatomic, Physiologic and Angiographic Considerations of Vein and Mammary Artery Grafts

ALEXANDER S. GEHA, JOHN R. McCORMICK*

and ARTHUR E. BAUE, St. Louis, Missouri

In an attempt to improve an early (2 weeks postoperatively) aortocoronary vein graft (ACVG) patency rate of 84% prior to 1973, we have used internal mammary-to-coronary artery grafts (IMAG) when possible. This study summarizes the results in 106 patients who received 242 grafts since January 1973. Twelve patients had ACVG s only (29 grafts) while 94 received one or two IMAG's with or without additional ACVG's, using in 24 a crossed double IMA (left IMA to left anterior descending (LAD), right IMA

to diagonal or marginal) to take advantage of the location and direction of the artery to be bypassed. Thirty-one patients with pre-infarction angina had IMAG's and all survived and did well.

Flows measured after bypass were not significantly different between ACVG's and IMAG's (61 ± 8 and 58 ± 7 ml/min.), but flows in crossed right IMA to diagonal or marginal vessels were significantly higher than in right IMA to right or LAD vessels (50 ± 7 v/s 32 ± 7 ml/min, $p<0.01$). In 12 patients with both ACVG and IMAG, there was no difference in the flow response of either graft to vasoactive drugs (isoproterenol, epinephrine and phenylephrine). Graft flow did not correlate with either mean arterial pressure or cardiac index. Early angiographic patency was 99% for IMAG's and 86% for ACVG's. The only IMAG occlusion was due to a clip on the proximal vessel which was corrected later. Twenty-six patients with IMAG's, including 8 with double IMA's, were studied 3 to 16 months postoperatively with patent mammary grafts in all.

We conclude that IMAG's yield higher patency and comparable flow rates to ACVG's and should be used when feasible. Graft flow is primarily dependent on the distal vascular bed rather than the conduit. When grafts to the LAD and high diagonal or marginal are required, the advantages of crossed IMAG's are: 1) better alignment of left IMA with LAD and right IMA with the diagonal or marginal without torsion; and 2) reduced length of each graft with a larger caliber of IMA at the anastomosis. IMA grafting is also a safe and feasible approach for pre-infarction angina.

INTERMISSION - VISIT EXHIBITS (Albert Hall)

*By invitation

5. Acute Myocardial Infarction: A Surgical Emergency

R. BERG, JR., L. W. RUDY*, J. H. GANJI*,

R. W. KENDALL*, F. J. EVERHART*, G. E. DUVOISIN*,

Spokane, Washington

Preservation of viable myocardium is the primary goal of coronary artery surgery. Our total direct coronary surgical experience of 1024 cases (2.7% mortality) includes 55 patients with evolving acute myocardial infarctions who were catheterized within an average of 5 hours from the onset of pain. Emergency coronary bypass surgery was carried out with 2 deaths (3.6%). Patients had fewer ventricular arrhythmias and shorter hospital stays than medically managed patients.

Postoperative cardiac catheterization showed 98% of the primary vein grafts to be patent. Followup studies up to 3 years after operation show no late deaths by actuarial analysis. Medical management of 275 patients under age 65 with acute myocardial infarction at our hospital has a mortality of 14.2% which approaches national averages. The lower surgical mortality coupled with the early and late clinical results

indicates that emergency coronary bypass is superior therapy in selected patients with acute myocardial infarction.

6. Acquired Ventricular Septal Defects: The Evolution of an Operation, Surgical Technique and Results

J. DONALD HILL, DARREL LARY*,

WILLIAM KERTH and FRANK GERBODE,

San Francisco, California

Myocardial infarction resulted in VSD's treated surgically in 19 patients between 1959 and 1974 at the Pacific Medical Center. The pre-operative pathophysiological characteristics were:

1) Murmur developed in less than 48 hrs. of infarction: 57% (11/19).

2) Single coronary artery disease: 60% (9/15).

3) VSD location: apex, 36%; posterior, 36%; anterior, 15%; middle, 10%.

4) Infarct location: anterior septal, 39%; posterior septal, 38%; anterior septal and inferior, 23%.

5) Associated aneurysm: 42% (8/19).

6) Cardiac Index: Mean 1.4 l/ml, Range 1.2-2.5 $1/m^2$.

Eight patients (Group 1), treated prior to 1970, had surgical principles applied similar to the correction of congenital VSD's. The results were poor. Treatment in Group 2 (11 patients) had new closure techniques more consistent with the pathology of the lesion. These principles are:

1) Apical VSD's: amputate apex.

2) All others repair through the left ventricular infarct: right ventricle is not opened.

3) The patch is applied only to the left side of the septum.

4) No foreign material on the right side of septum.

5) The VSD closure sutures are brought to the outside of the right ventricle wall.

6) The right ventricular wall is sutured against the right side of VSD. They heal together.

7) Outside teflon felt bolsters are used to support the sutures.

8) Aneurysms are excised. Left ventricular stroke volume is preserved.

9) Re-vascularization.

There was one survivor in Group 1 (13%). Seven patients survived in Group 2 (64%), including 5 of the last 6 patients. Survival was not related to the timing of surgery or to the location of the VSD. Excising the aneurysm and the size and condition of the remaining left ventricle are important determinants of the outcome.

Six of the eight survivors are living normal lives. Post operative heart cathe-therization results will be presented. One patient has a residual shunt and one died at 8 months with bi-ventricular failure.

Surgical treatment following new surgical principles has changed a hopeless lesion into one with a more favorable outcome.

11:15 A.M. Presidential Address

A TIME FOR INSIGHT AND REFLECTION

Wilfred G. Bigelow

*By invitation

MONDAY AFTERNOON, APRIL 14, 1975

Back to Annual Meeting Program

MONDAY AFTERNOON, APRIL 14, 1975

2:00 P.M. Scientific Session

Imperial Ballroom

7. Long-term Survival Following Surgical Resection for Bronchogenic Carcinoma

GILBERT L. ASHOR*, WILLIAM H. KERN*, BERT W. MEYER,

GEORGE G. LINDESMITH, QUENTIN R. STILES

and BERNARD L. TUCKER*, Los Angeles, California

The overall prognosis of patients with lung cancer remains poor, however, a significant number survive for a prolonged period of time after surgical resection. Lobectomy or pneumonectomy was performed for 358 patients with carcinoma from January 1937 to June 1961. Ninety-four (26%) survived five years or longer after resection. Our surgical and pathological experience with these 94 patients was reported previously. Sixty-four of these patients survived for 10 years or longer. This study is an analysis of the clinical and pathological features of the 64 patients surviving 10 years or more in an effort to determine those features that may be associated with long term survival.

All cases were reviewed and reclassified histologically. The average age of the 54 men and 10 females at the time of resection was 57. There were 22 central, 20 intermediate and 22 peripherally located

lesions. Bronchiolar and adenocar-cinomas were relatively frequent among the ten year survivors. No survivor occurred in those patients with oat cell carcinoma.

Pneumonectomy was performed for 31 patients and lobectomy for 33. Although lobectomy carried a better 10-year survival rate than pneumonectomy (28% vs. 12.8%), there were substantial differences in the composition of each group.

Many of those surviving 10 years or more had pathologic conditions which ordinarily would be considered unfavorable for survival: large size of tumor (average 4.2 cm.), regional lymph node metastases (27%), tumor at the bronchial margin and pleural invasion (19%), and centrally located lesions (34%). Despite these findings in many of the patients, 64 of 358 (18%) who underwent surgical resection for bronchogenic carcinoma survived greater than 10 years.

Therefore we believe reasonable attempts at curative resection for bronchogenic carcinoma seem indicated in spite of unfavorable pathologic findings since some of these patients will survive for 5 and even 10 years.

*By invitation

8. Long Term Intermittent Adjuvant Chemotherapy for Primary Resected Lung Cancer

HIDEO KATSUKI*, YUTAKA YAMAGUCHI*,

TATSUYA OKAMOTO*, KOICHIRO SHIMADA* and

MASHAHIKO OKITA*, Chiba, Japan

Sponsored by John R. Benfield, Torrance, California

Adjuvant chemotherapy for lung cancer is an appealing previously unsuccessful approach towards improving the results of pulmonary resections. We have tested long term intermittent adjuvant chemotherapy in 126 patients, and the results as compared to 101 controls shall be reported. Commencing with a preoperative course which was repeated immediately after operation, at 2-month intervals, during the first postoperative year, and at 6-month intervals during the next 2 postoperative years, Mitamycin M (MMC) and Toyomycin (TM) were given. Four weeks were necessary for each course which consisted of MMC 0.1 - 0.12 mg/kg twice weekly for a total of 40 mg, and TM 0.02 mg/kg 5 times per week to a total dosage of 10 mg.

The overall 5 year survival of the 126 adjuvant chemotherapy patients (Group I) was 42% as compared to 24% in the controls (Group II). Group I patients with negative nodes and "curative" resections had a 57% five-year survival. More striking was the difference between patients in Groups I and II who had lymphatic metastases at the time of resection. For example, the 5-

year survival among 20 patients in Group I whose lymph node metastases were not apparent until postoperative study of the specimens was 53%, as compared to only 30% among the controls who met the same criteria. Similarly, among 68 in whom resection was done, although lymphatic spread was recognized at the time of resection, the 5-year survival rate was 24% in patients who received adjuvant chemotherapy as compared to 11% in controls. Although there were side effects from the chemotherapy which occasionally required temporary interruption, there were no apparent adverse effects upon operative mortality and morbidity. We conclude that long-term intermittent chemotherapy adjunctive to pulmonary resection is both safe and worthwhile. The concept of adjuvant chemotherapy should continue to be tested.
*By invitation

9. Multiple Primary Lung Cancer

NAEL MARTINI and MYRON R. MELAMED*, New York, New York

The first Memorial Hospital patient with two separate primary carcinomas of lung was seen and treated in 1954 and 1955. In the 20 years since then, there have been a total of 42 such patients, representing slightly over 1% of the 3,300 patients treated for primary lung cancer. Thirteen had synchronous tumors; two had two evident lesions pre-operatively by chest x-ray; nine were first diagnosed as having two separate carcinomas at thoracotomy and the two remaining cases at autopsy.

In 29 patients the tumors were metachronous, varying from 6 months to 16 years between diagnoses, with a median time of 3½ years. Of interest, in 7 of these patients, one of the carcinomas was radiologically occult and was detected by cytology.

Histologic patterns in the two carcinomas were the same in 27 patients, most commonly epidermoid, and they were different in 15 patients. The two tumors were located in different lungs in 29 patients, in different lobes of the same lung in 7 patients, and in the same lobe in 6 patients.

Survival of patients with synchronous tumors was essentially the same as for solitary, resectable lung carcinomas. Surgical mortality was zero. In patients with metachronous tumors, surgical mortality was high at the second operation (26%). There were five survivors living longer than 3 years, and two for more than 5 years. In the remaining patients death was due to compromised pulmonary function as well as carcinoma.

The problems involved in establishing the diagnosis of multiple lung cancers, the choice of treatment and the expectation for survival will be discussed.

*By invitation

10. Immune Responses to Human Lung Carcinoma-Associated Antigens

JACK A. ROTH*, E. CARMACK HOLMES*, ARTHUR W. BODDIE*,

and DONALD L. MORTON, Los Angeles, California

Tumor antigen preparations would be clinically useful in the immunodiagnosis and immunotherapy of lung cancer. However, the existence of such unique antigens associated with lung carcinomas remains controversial. We have detected in vitro and in vivo cell-mediated immune responses to soluble tumor antigens extracted from 8 lung carcinomas. Ten of 13 lung cancer patients (77%) showed significant in vitro lymphocyte stimulation to one or more tumor antigens. Tumor antigen and antigen from autologous uninvolved lung were solubilized by 3M KCL extraction and lymphocyte stimulated protein synthesis was assessed by measuring H^-leucine incorporation following incubation with antigen. One of two patients stimulated to an autologous lung cancer antigen. Furthermore, cross-reactivity of extracts among lung cancer patients demonstrated a common antigen. Nine of these patients also reacted to the normal lung extract, indicating response to a lung tissue-associated antigen. Only 7 of 28 control patients (25%) with benign disease or other neoplasms reacted to these antigens in vitro. Delayed cutaneous hypersensitivity reactions to lung tumor or normal antigens correlated significantly with the in vitro responses.

These results indicate that both tumor-associated and tissue-associated antigens of human lung carcinomas do, in fact, exist.

INTERMISSION - VISIT EXHIBITS (Albert Hall)

*By invitation

11. Operative Stabilisation of Non-Penetrating Chest Injuries

BRYAN P. MOORE*, London, England

Sponsored by Hermes Grille, Boston, Massachusetts

Since 1958, 112 severe or moderately severe non-penetrating chest injuries have been treated. An aggressive policy has been adopted towards correcting or preventing major paradoxical chest wall movement by infra-medullary pinning of ribs, costal cartilages and sternum. Where possible, positive

pressure mechanical ventilation and tracheostomy have been avoided. Fifty patients underwent stabilising operations. The surgical approach was antero-lateral in 12 (average 3.3 pins), postero-lateral in 35 (average 6.8 pins) and mid-sternal in three.

Tracheostomy was performed in eight of these 50 patients. Three died, on the 1st, 3rd and 25th days after injury. The tracheostomy was used for aspiration of secretions only in three others and for postoperative I.P.P.V. in two others. The duration of I.P.P.V. was 14 days and one day. Oro-tracheal intubation with mechanical ventilation after operation extending to more than a few hours was required for three patients of whom one died. The two survivors were ventilated for one and for five days. There was a total of eleven hospital deaths in these 50 cases, but in two, the severity of the initial injuries was thought to make death inevitable. Three of the patients who died were over 70.

Operative stabilisation permits avoidance or reduction in time of tracheostomy and mechanical ventilation. Permanent chest wall deformity is reduced or avoided.

*By invitation

12. Cannulation of the Proximal Aorta During Chronic Membrane Lung Perfusion

M. TERRY McENANY*, WARREN ZAPOL*, JURGEN SEEBACHER*,

MAREK SKOSKIEWICZ*, ROBERT SCHNEIDER*, JOHN ERDMANN*,

MICHAEL SNIDER*, DAVID KANAREK* and ANTHONY PECK*,

Boston, Massachusetts

Sponsored by J. Gordon Scannell, Boston, Massachusetts

Prolonged extracorporeal support for acute respiratory failure is a reality. Recent experience with four patients treated with veno-arterial bypass for from five to eleven days has demonstrated definite advantages in delivering oxygenated blood to the aortic root rather than the descending aorta. Oxygenated blood is delivered from a 3.5 M^ spiral coil membrane lung to the tip of the infusion catheter and, with normal cardiac output, there is little retrograde perfusion. In order to deliver membrane-oxygenated blood to the proximal aorta, thereby perfusing coronary and cerebral circulations with pump output, a thin-walled, steel, spring-enforced polyurethane cannula (0.250" - .300" O.D., 0.215" - 0.265" I.D.) is inserted through the common femoral artery up to the aortic root (2 cases) or transverse arch (2 cases). Distribution of oxygenated (membrane) blood was well demonstrated directly by cine-angiography and ^{133}Xenon perfusion scan. Membrane oxygenated blood perfused the coronary

arteries only when the catheter tip was near the sinuses of Valsalva (with a pump output of 2.5 L/min and left ventricular output of 5 L/min). With this positioning, complete aortic mixing of membrane-oxygenated and heart blood was demonstrated. With cannulation of the transverse arch (tip between the innominate and left subclavian arteries) the pump delivers oxygenated blood preferentially to the left common carotid and subclavian arteries while right common carotid flow is uniformly de-oxygenated if left ventricular output is more than 3 L/min.

Chronic bypass resulted in long term survival or marked respiratory improvement in two patients with post-traumatic gram-negative pneumonitis, while two patients with post-transfusion respiratory failure and viral pneumonitis died, after eleven and nine days, with inexorable pulmonary failure. Autopsies demonstrated no emboli or intimal lesions from this proximal cannulation, and we feel that its use will lead to improved cardiac and cerebral function on extracorporeal oxygenation.

*By invitation

TUESDAY MORNING, APRIL 15, 1975

Back to Annual Meeting Program

TUESDAY MORNING, APRIL 15, 1975
8:30 A.M. Scientific Session
Imperial Ballroom

13. The Surgical Implication of Broncholithiasis

L. PENFIELD FABER, ROBERT J. JENSIK, SURRENDRA K CHAWLA*, C. FREDERICK KITTLE, Chicago, Illinois

A calcified hilar or mediastinal lymph node can compress or erode an intra-thoracic structure causing significant symptoms including severe hemoptysis. We have operated upon 31 patients with bronchohthiasis. The great majority of these complained of cough and 15 of 31 had hemoptysis. Only one patient had Iithoptysis. Distal atelettasis and bronchiectasis were common pathologic changes

Surgical measures carried out were- segmental resection - 15; lobectomy - 5, bilobectomy - 1; pneumonectomy - 1, removal of nodes only - 2; repair of broncho-esophageal fistula - 4; bronchoplastic procedures - 3.

Granulomatous reaction may simulate carcinoma and bronchoscopy, bronchial brushing, and bronchography are of extreme importance in preoperative evaluation. The presence of calcined nodes revealed by tomography may be the best clue to the diagnosis.

Broncholithiasis, with its increasing frequency, must be recognized. The great variety of pathological alterations which one may encounter requires a versatile surgical approach.

*By invitation

14. Pulmonary Hyperinflation: A Form of Barotrauma During Mechanical Ventilation

OSCAR R. BAEZA*, ROBERT B. WAGNER* and BRIAN D. LOWERY*, Baltimore, Maryland

Sponsored by Vincent L. Gott, Baltimore, Maryland

The term "barotrauma" has been used to describe several specific complications related to mechanical ventilation. These include tension lung cyst, pneumothorax, pneumomediastinum, pneumoperitoneum and subcutaneous emphysema. Pulmonary hyperinflation is another complication of mechanical ventilation, currently unemphasized, that we describe in five patients, being fatal in three. Serial radiographs and blood gas data demonstrate the progression and clearing of pulmonary infiltrates and contusions with the associated hypoxemia and hypercarbia. Two pathophysiologic mechanisms are discussed. The simpler, and well recognized, "ball-valve" airway obstruction allows inspiration of air delivered by the mechanical ventilator but prevents expiration. A more complex circumstance exists when pulmonary contusion or infiltration produces differential lung compliances. This latter was seen to allow extreme hyperinflation of areas of normal lung while attempting to ventilate abnormal lung of low compliance. This mechanism *is* particularly evident when positive end expiratory pressure (PEEP) is used in an attempt to open collapsed ventilatory units. Functional complications of lung hyperinflation include decreased alveolar ventilation and compression effects on adjacent structures. Interference with and shifts of regional lung perfusion may worsen gas exchange. Initial symptoms are restlessness and intolerance of the ventilator. If uncorrected, agitation, cyanosis, hypoxemia and hypercarbia supervene. Prolonged expiration is evident. Eventually, circulatory collapse occurs. A successful outcome was seen with early recognition and proper treatment, including airway clearance by bronchoscopy, the judicious use of bronchodilators and the discontinuance of PEEP.

*By invitation

15. Primary Tracheal Anastomosis Following Resection of the Cricoid Cartilage with Preservation of Recurrent Laryngeal Nerves

F. G. PEARSON, J. D. COOPER*, J. M. NELEMS* and A. W. P. VAN NOSTRAND*, Toronto, Canada

Resections at cricoid level pose the problems of recurrent laryngeal nerve damage and loss of circumferential cartilaginous support. Strictures within the cricoid ring have usually been managed with keels or stents, and neoplasms by laryngectomy. This paper reports on six patients with lesions involving cricoid, who were successfully managed by segmental trachea! resection and removal of all but a thin shell of posterior cricoid plate. Distal trachea was anastomosed at subglottic level within 1 cm. or less of the vocal cords.

Two patients had traumatic transection at crico-tracheal level with disruption of cricoid cartilage and avulsion of both recurrent nerves. Each was managed by resection of all cricoid cartilage lying below the inferior margin of thyroid cartilage, and anastomosis of distal trachea to inferior thyroid margin. No attempt was made to reconstruct the avulsed nerves.

Four patients with tracheal lesions involving cricoid (two post-intubation strictures, one chemical burn, one adenoid cystic carcinoma) - and intact recurrent nerves were managed by segmental tracheal resection with complete removal of the anterior cricoid arch and that part of the postenor cricoid plate lying subjacent the mucosa. A thin posterior shell of cricoid plate was preserved which included crico-thyroid joints and recurrent nerves. Cartilage at the distal tracheal resection line was fashioned to form a complete ring and anacstomosed to mucous membrane at subglottic level within 1 cm. or less of the vocal cords.

Primary healing and good clinical results were obtained in all six patients. In the four patients with intact recurrent nerves, nerve function was preserved. This technique provides a method for resection and reconstruction in one stage for selected lesions at cricoid level.

*By invitation

16. Esophagogastrostomy - Analysis of 55 Cases

ARTHUR D. BO YD, RAMON CUKINGNAN*, RICHARD M. ENGELMAN*, S. ARTHUR LOCALIO*, LOUIS SLATTERY*, DAVID A. T1CE, and FRANK C. SPENCER, New York, New York

Esophagogastrostomy was performed in 55 patients following esophagectomy for malignant disease of the esophagus or esophagogastric junction at the NYU Medical Center from 1969 through 1973. In 29 (53%) of these patients a Nissen type fundoplication was incorporated into the operative procedure (Group I) while in 26 (47%) fundoplication was not utilized (Group II). The operative mortality was 10% in Group I and 8% in Group II. Postoperative barium esophagograms demonstrated reflux in 3 of 18 patients (17%) from Group I and in 9 of 16 patients (56%) from Group II. Clinical evidence of reflux was seen in 2 patients from Group I and 5 patients from Group II. An anastomotic leak occurred in 1 patient (Group I). Five patients in Group I developed early dysphagia from the fundoplication which responded readily to dilation. The survival at one year was 45% in Group I, 42% in Group II and at 2 years was 28% in Group I and 30% in Group II.

These data show that a Nissen fundoplication does not increase operative mortality or morbidity and significantly reduces the frequency of esophageal reflux. We favor its routine use with esophagogastrostomy.

INTERMISSION - VISIT EXHIBITS (Albert Hall)

*By invitation

17. Columnar Lined Lower Esophagus: An Acquired Lesion with Malignant Predisposition

A. P. NAEF*, M. SAVARY*, and L. OZZELLO*, Yverdon, Switzerland

Sponsored by F. G. Pearson, Toronto, Canada

This paper reports observation on 126 patients with columnar epithelium lining the distal esophagus. The underlying pathology was evaluated by history and esopnagoscopy, and many of these patients underwent repeated endoscopic examination to clarify the

pathogenesis of the lesion. Changes in esophageal epithelium were documented by direct biopsy and photography.

In most cases, history and endoscopic documentation demonstrated that the abnormality was due to gastro-esophageal reflux and ulcerative esophagitis. In some patients with esophagitis, areas of mucosal ulceration were found to be replaced by columnar epithelium at a subsequent esophagoscopy. These observations indicate that "columnar lined lower esophagus" can be an acquired condition which results from the replacement of ulcerated squamous epithelium by columnar epithelium during the healing phase of esophagitis.

Twelve of the 126 patients in this series had an adenocarcinoma in the distal esophagus. In three of these patients the malignancy was confined to the segment of distal esophagus lined with columnar epithelium. In nine others the tumour, although located on the distal columnar lined esophagus, extended down to the cardia inclusive. It has been claimed by others that peptic esophagitis is associated with an abnormally high incidence of adenocarcinoma in the distal esophagus, and our observations support these claims. We speculate that metaplastic changes are associated with columnar re-epithelialization of ulcerated areas during repeated exacerbations and remissions of esophagitis, and predispose to malignant transformation.

Columnar lined lower esophagus is an acquired condition secondary to gastro-esophageal reflux and ulcerative esophagitis in most cases. The incidence of esophageal carcinoma is high in such patients and warrants critical endoscopic assessment and biopsy of all suspicious areas.

*By invitation

18. Substernal Gastric Bypass of the Excluded Thoracic Esophagus for Palliation of Esophageal Carcinoma

MARK B. ORRINGER* and HERBERT E. SLOAN,
Ann Arbor, Michigan

Curative resectional therapy for esophageal carcinoma is not possible in the presence of involved celiac or cervical lymph nodes or a tracheoesophageal fistula. In these situations, relief from dysphagia and repeated aspiration may be accomplished by means of a substernal gastric bypass of the excluded thoracic esophagus. This procedure, performed through a cervical and upper abdominal incision, involves mobilization of the stomach to a substernal location with anastomosis of the gastric fundus to the cervical esophagus. Exclusion of the thoracic esophagus at either end is accomplished with the surgical stapler. Five patients, two with malignant tracheoesophageal fistulae, and three with carcinoma of the esophagus and either celiac or cervical lymph node metastases have been palliated with this procedure. Of these patients, two died with massive exsanguination from aorto-tracheo-esophageal fistulae 2 months and 9 months after operation, one died of progressive cachexia after 2 months and two are alive 3 months and 6 months after surgery. All patients have been able to eat regular diets postoperatively.

This technique of esophageal bypass avoids the need for a thoracotomy and mediastinal dissection; it requires only a single, cervical gastrointestinal anastomosis; and it utilizes the stomach, which possesses a dual blood supply that surpasses that of any

other portion of the gastrointestinal tract used for esophageal replacement. The technique possesses advantages over more conventional palliative operations which combine the hazards of a combined thoraco-abdominal operation with multiple intestinal anastomoses in a generally debilitated incurable patient.

11:15 A.M. Address of Honored Speaker
SURGERY IN THE SUB-ARCTIC: A THORACIC SURGEON'S ODYSSEY
Gordon W. Thomas, Director
International Grenfell Association
St. Anthony, Newfoundland
*By invitation

TUESDAY AFTERNOON, APRIL 15, 1975

Back to Annual Meeting Program

TUESDAY AFTERNOON, APRIL 15, 1975

2:00 P.M. Scientific Session

Imperial Ballroom

19. Carpentier's Annulus and De Vega's Annuloplasty: The End of The Tricuspid Challenge

PIERRE GRONDIN, CLAUDE MEERE*, RAYMOND LIMET*, Montreal,

Canada JUAN-LUIS DELCAN-DOMINGUEZ* and RAMIRO RIVERA-LOPEZ*,

Madrid, Spain

Acquired tricuspid insufficiency has been for years a surgical challenge. Its importance remains difficult to assess not only by clinical and hemodynamic investigations, but even at the time of surgery by digital exploration. In borderline cases, the surgeons are hesitant to use a prosthesis entailed with numerous ill-effects or to perform a Wooler-Kay annuloplasty known for its unpredictable results.

The advent of Carpentier's annulus and of De Vega's semi-circular annuloplasty has favorably altered this challenge by providing excellent immediate results. A long term evaluation was conducted by two groups of investigators (Madrid and Montreal), in 32 cases with a Carpentier's annulus and in 17 with De Vega's annuloplasty. Tricuspid function was assessed between 6 and 24 months after operation by clinical examination and by the following hemodynamic studies: atrial and ventricular pressure readings, dye dilution curves, intra-cavitary phono-cardiogram and right ventriculography.

No thrombo-embolic phenomenon, no A.V. block and no significant complication related to the surgical technique were observed. Tricuspid incompetence has completely disappeared in most instances and has been markedly reduced in all.

Comparing these results to a similar study done in cases in which a Wooler-Kay annuloplasty was employed, has disclosed a notable superiority. Is this the end of the Tricuspid Challenge?

*By invitation

20. Isolated Mitral Valve Replacement With the Kay-Shiley Disc Valve-Actuarial Analysis of the Long Term Results

HARRY A. WELLONS, JR.*, ROBERT S. STRAUCH*,

STANTON P. NOLAN and WILLIAM H. MULLER, JR.,

Charlottesville, Virginia

With increasing numbers of prosthetic valves available for replacement of the mitral valve, it is vital that clinical results with each valve be carefully documented. Results should be examined in terms of operative and late mortality, quality of life, thromboembolic complications, mechanical and hemodynamic function. It is only by this method that the true value of various mechanical designs will be determined.

Between March 1967 and December 1972, the Kay-Shiley disc valve was utilized for 83 isolated mitral valve replacements. Nine patients were NYHA Class IV, 59 Class III, and 15 Class II. There were 14 early deaths (17.2% early mortality) and 29 late deaths. One of the early deaths and 14 of the late deaths were directly attributable to embolic phenomena. Survival determined by the actuarial method revealed a cumulative survival rate of 39.8% six years following operation. Thirty-three patients had a total of 55 thromboembolic events, representing a rate of 24.7 emboli/1000 months at risk. Thromboembolism was evaluated by a modified actuarial table, which revealed that 35.2% of the patients were event free at six years following operation. Of the 63 patients in whom sufficient follow up information was available, 35 had improved by one or two cardiac classes, 26 were unchanged, and two were worse.

It is our opinion, based on this experience, that this prosthesis should not be used for mitral valve replacements due to the unacceptable incidence of thromboembolism and late mortality.

*By invitation

21. The Significance of Coronary Arterial Stenosis During Cardiopulmonary Bypass

RICHARD M. ENGELMAN*, FRANK C. SPENCER and

ARTHUR D. BO YD, New York, New York

Myocardial infarction may develop during an uneventful open heart operation. In order to better understand this complication, an experimental study was undertaken. The left circumflex coronary artery of 20 dogs was narrowed to 50% of its area by a metal screw clamp, producing a localized coronary stenosis. Regional myocardial perfusion in both the (stenotic) circumflex and (normal) left anterior descending (LAD) distribution was measured by injection of a radioactive labeled microsphere (15±5μ). Circumflex coronary artery flow was measured using an electromagnetic flow probe. An epicardial electrogram was recorded in the distribution of the left circumflex and the area of the ventricle marked by a tissue stain. Measurements of regional myocardial perfusion, circumflex flow, and the epicardial electrogram were performed in each animal during the control (pre-bypass) state and during Cardiopulmonary bypass (CPB) with a beating and fibril-lating ventricle. Half the animals had CPB performed at 50mm Hg perfusion pressure and half at 100mm Hg. The animals were sacrificed at the end of the study, the hearts sectioned, weighed, and counted. A cast was made of the stenotic circumflex coronary artery, the degree of stenosis measured and percent area stenosis calculated.

Myocardial perfusion prebypass distal to the circumflex stenosis was 151ml/100g/min compared to 144 in the LAD distribution. Thirty min of CPB at 50mm Hg (beating ventricle) reduced perfusion distal to the stenosis to 92 and distal to the LAD to 114 while 30 mm CPB at 100mm Hg increased perfusion distal to the stenosis to 190 and distal to the LAD to 215ml/100g/min. The epicardial electro-gram showed ischemic changes in 2 of 10 animals at 50mm Hg and none at 100mm Hg. During CPB at 50mm Hg in the beating ventricle, the already depressed myocardial perfusion was unchanged by 30 min fibrillation. At 100mm Hg, however, regional circumflex perfusion decreased from 190 to 154 and LAD perfusion decreased from 215 to 164ml/100g/min after 30 min fibrillation.

This study shows that the effect of a 50% coronary stenosis in reducing distal flow is only apparent during CPB at reduced pressure. The mechanism whereby a myocardial infarction develops during CPB could evolve from the development of a "critical" stenosis out of a mild to moderate one at a reduced perfusion pressure during CPB.

*By invitation

22. A New Method for Temporary Left Ventricular Bypass: Preclinical Appraisal

WILLIAM F. BERNHARD, VICTOR POIRIER*, JAMES G. CARR*,

and C. G. LAFARGE*, Boston, Massachusetts

Surgical patients who cannot be weaned from cardiopulmonary bypass during operation, or who develop balloon dependent left ventricular failure postoperatively, are now considered irretrievable. However, in those with potentially reversible ventricular dysfunction, recovery might be possible if an improved means of temporary (maximum 30 days) circulatory support were available. Toward this end, a pneumatically actuated, left ventricular assist pump was developed and evaluated in 12 consecutive calf experiments. The device, containing a flexible, polyurethane pumping chamber (80ml stroke volume), was positioned on the chest wall and connected to the left ventricular apex (inflow) and descending thoracic aorta (outflow) by two Dacron conduits containing porcine xenograft valves. All animals survived the 30-day pumping interval, and five underwent successful removal of the device by dividing the Dacron conduits below skin level. During pumping, cardiac catheterization (six animals) revealed no systolic transvalvular pressure gradients at a continuous flow of 5.0 L/min, and die absence of blood trauma was confirmed by hematologic studies, including erythrocyte survival (30 ± 4.0 days), platelet survival (5.3 ± 1.2 days) and fibrinogen clearance (4.5 ± 1.0 days). After animal sacrifice, examination of pump surfaces revealed firm attachment of a fibrin and collagenous layer to the underlying matrix of flocked Dacron fibrils. The xenograft valves also remained free of loose thrombus.

As a prelude to human investigation, pumps were implanted during a series of routine autopsies through a midline sternotomy incision. The device was positioned on the right antero-lateral chest wall, with two valved conduits traversing the mediastinum to connect the pump to the left ventricular apex and ascending aorta.

Recently, the blood-prosthetic interface and implantation method has been evaluated in a patient with severe diffuse hypoplasia of the aortic valve annulus and ascending aorta. A single-valved left ventricular-aortic bypass prosthesis was inserted and has functioned satisfactorily for six months.

3:30 P.M. Executive Session (Limited to Active and Senior Members)

Imperial Ballroom

*By invitation

TUESDAY EVENING, APRIL 15, 1975

7:00 P.M. President's Reception

Georgian Ballroom

8:00 P.M. President's Dinner and Dance

Georgian Ballroom

Attendance open to all physicians and their ladies. Tickets must be purchased at the registration desk by 5:00 P.M. on Monday, April 14.

Dinner dress preferred.

WEDNESDAY MORNING, APRIL 16, 1975

Back to Annual Meeting Program

WEDNESDAY MORNING, APRIL 16, 1975

8:30 A.M. Scientific Session

Imperial Ballroom

MYOCARDIAL PRESERVATION

(Open Discussion)

Chairman - W. G. Bigelow

Metabolism (Abstract 23) David C. MacGregor
Biochemistry (Abstract 24) R. W. Busuttil

Retrograde Coronary Perfusion (Abstract 25) Robert A. Poirier

Low Output Syndrome (Abstract 26) Gerald Buckberg
Subendocardial Flow (Abstract 27) Charles F. Reuben
Local Deep Hypothermia (Abstract 28) Randall B. Griepp

Intra-Aortic Balloon Pumping (Abstract 29) David Bregman

Intra-Aortic Balloon Pumping (By Invitation) Donald B. Effler

INTERMISSION - VISIT EXHIBITS (Albert Hall)

Coronary Perfusion (By Invitation) Dwight C. McGoon
Anoxic Arrest (By Invitation) Denton A. Cooley
Ventricular Fibrillation (By Invitation) Ronald J. Baird

Open Discussion (Seventy Minutes)

Summary and Perspective (By Invitation) James V. Maloney, Jr.

23. Ischemic Contracture of the Left Ventricle: Production and Prevention

DAVID C. MacGREGOR*, GREGORY J. WILSON*, SHIGEO TANAKA*,

DONALD E. HOLNESS*, WOLFGANG LIXFELD*,

MALCOLM D. SILVER* and LORRAINE J. RUBIS*, Toronto, Ontario, Canada

Sponsored by W. G. Bigelow, Toronto, Canada

Ischemic contractive of the left ventricle ("stone heart") is a recognized complication of prolonged periods of interruption of the coronary circulation during open-heart surgery. We have examined the effects of moderate hypothermia (28°C) and preoperative beta-adrenergic blockade (propranolol, 0.5 mg/kg; 1.0 mg/kg) on contracture development during ischemic arrest of the heart.

Four groups of 8 dogs each were placed on total cardiopulmonary bypass and ischemic arrest of the heart was produced by cross-clamping the ascending aorta and venting the left ventricle. Intramyocardial carbon dioxide tension was continuously monitored by mass spectrometry. When anaerobic energy production ceased, as indicated by a final plateau in the intramyocardial carbon dioxide accumulation curve, the ischemic arrest was terminated and the contractile state of the heart observed. These results are tabulated below:

			Termination of Arrest		Ischemic
Group	Temperature	Propranolol	Time	$P^{CO}2$	Contracture
I	38°C	none	*54.4±4.2 mm	474±29 mm Hg	yes
II	38°C	0.5 mg/kg	79.6±5.1 min	527±38 mm Hg	yes
III	38°C	1.0 mg/kg	76.6±4.9 min	455±42 mm Hg	yes
IV	28°C	none	120.4±5.5 min	341±26mmHg	no

*Mean ± SEM; 8 dogs in each group

We conclude that beta-adrenergic blockade delays, but does not prevent, the onset of ischemic contracture of the left ventricle under normothermic conditions. Moderate hypothermia appears to completely prevent this complication.
*By invitation

24. Protective Effect of Methylprednisolone on the Heart During Ischemic Arrest

R. W. BUSUTTIL*, W. J. GEORGE* and R. L. HEWITT,

New Orleans, Louisiana

Although corticosteriods have been shown to stabilize lysosomal membranes and prevent release of hydrolytic enzymes, the mechanism of membrane stabilization remains obscure, and the few reports regarding use of steroids in myocardial ischemia have been conflicting. This study was undertaken to determine if a pharmacological dose of the glucocorticord, methylprednisolone, (MP) would protect the heart during ischemic cardiac arrest.

A randomized double-blind study was performed in 25 dogs. Biochemical and hemodynamic parameters were assessed during and after cardiopulmonary bypass and 30 minutes of ischemic cardiac arrest. Group I (11 animals) received MP 30 mg/Kg I.V. at 18 hours and 1 hour prior to surgery. Group If (13 animals) served as controls and received MP vehicle at the same time periods. Blood pH, gases, and electrolytes were measured; aortic, left aerial, and left ventricular pressures were monitored; the first derivative of the left ventricular pressure (dp/dt max) was also determined. Arterial and coronary sinus blood samples were assayed for iactate levels and activity of the lysosomal enzyme, Î²-glucuronidase. Left ventricular muscle was assayed for the nucleotides, cyclic AMP and cyclic GMP.

Following restoration of coronary flow, mean aortic and left ventricular systolic pressures and left ventricular contractility as determined by dp/dt max and dp/dt max/IP were depressed in both groups as expected but were significantly higher in Group I than in Group II ($p < 0.05$). An increase in levels of both cyclic nucleotides occurred in each group during ischemia, but this increase in cyclic GMP was significantly greater in Group II ($p < 0.05$). ^3-glucuronidase activity and myocardial potassium loss as determined in coronary sinus blood were both significantly greater in Group II than in Group I ($p < .05$).

Results of this study demonstrate that pretreatment with a pharmacologic dose of MP significantly enhances cardiac recovery after ischemia. Lysosomal membrane stability and modulation of cyclic GMP levels may be critical determinants in the mechanism of cardiac ischemia.

*By invitation

25. Drip Retrograde Coronary Sinus Perfusion (RCSP) for Myocardial Protection

ROBERT A. POIRIER*, ROBERT A. GUYTON*, and

CHARLES L. McINTOSH*, Bethesda, Maryland

Sponsored by A. G. Morrow, Bethesda, Maryland

Moderate hypothermia is frequently utilized as a sole method of myocardial protection when the aortic root is cross-clamped but not opened. This leaves the myocardium anoxic since at 27°C, oxygen utilization has been shown to only be reduced 50%. A combination of low pressure (15-20 mmHg), low flow (1cc/kg/ mm) RCSP with oxygenated blood and moderate hypothermia (29°C) was demonstrated to yield significantly better ($P < 0.001$) protection to LV function in dogs than moderate hypothermia alone. The only apparatus was an ordinary intravenous bottle and tubing periodically filled by the bypass pump, and perfusion was by gravity drip into a balloon catheter inserted blindly into the coronary sinus through a stab wound in the right atrial wall. Left ventricular function studies were recorded prior to and following 1 hour of aortic cross-clamping at identical preloads (LVEDP) and heart rates (atrial pacing). Aortic pressure (after-load) was returned to a level as close to baseline as possible by constriction of the descending thoracic aorta. Changes in ventricular function after one hr. of aortic cross-clamping are noted below.

	Cardiac Output	LV Stroke Work	Peak Dp/Dt
I RCSP at normothermia (8 dogs)	†“40%	†“42%	†“23%
II Moderate hypothermia (8 dogs)	†“62%	†“75%	†“44%
III RCSP and moderate hypothermia (8 dogs)	†“6%	†“9%	†“5%

Fifteen of sixteen hearts in Groups I and HI continued to beat, and remained pink for the entire hour of cross-clamping (one fibrillated at 20 minutes) while all those in Group II fibrillated (average of 17 min.). Following 1 hr. of aortic cross-clamping, the average aortic pressure in Group III was returned to within 4% of baseline (1 with complete, 6 with partial and 1 without aortic constriction), while Group II could only be returned to a level which was 37% lower than baseline (despite complete aortic constriction in all animals). The advantages of RCSP combined with moderate hypothermia are (1) an additional mode of protection when the aortic root is clamped but not opened, (2) a supply of oxygen to what is otherwise an anoxic myocardium, (3) a technique and apparatus which are simple and require a minimum of attention. With reference to possible intra-aortic surgery, this low flow retrograde perfusion does not produce serious intra-aortic visual obstruction. The above results, combined with the simplicity of the modality, suggests that RCSP may be indicated when moderate hypothermia is otherwise chosen to be the sole source of myocardial protection.

*By invitation

26. Depressed Postoperative Myocardial Performance: A Preventable Complication of Open Heart Surgery

GERALD BUCKBERG, GORDON OLINGER*, DONALD MULDER,

JAMES V. MALONEY, JR., Los Angeles, California

Depressed postoperative myocardial performance ("low output syndrome") requiring inotropic or mechanical circulatory support is due to subendocardial necrosis and is the major cause of death after open heart surgery (Taber, Najafi, Buckberg). Before July 1972, we, as others, used ischemic arrest, profound topical hypothermia, and ventricular fibrillation and needed inotropic drugs in approximately one-third of patients undergoing aortic valve replacement or coronary revascularization and in one-half of patients undergoing mitral valve replacement. Reported mortalities (mitral valve replacement and high risk coronary revascularizations) ranged from 10-40%. Our experimental studies show this morbidity and mortality is caused by ischemic injury to the heart resulting from inadequate myocardial protection during bypass.

Based on these experimental studies, we have, since July 1972, employed the following principles clinically: 1) maintain beating empty heart whenever possible, 2) avoid ventricular fibrillation, 3) avoid prolonged profound topical hypothermic arrest, 4) avoid severe hemodilution, 5) maintain adequate coronary perfusion pressure (at least 80 mm Hg), 6) limit ischemic periods to less than 12 minutes, 7) prolong total bypass as necessary to repay myocardial oxygen debt, 8) optimize DPTI/TTI (supply/demand ratio) pre and postoperatively.

In 189 consecutive operations using these principles, postoperative inotropic support was required in a) one (5%) of 22 mitral valve replacement patients (one death), b) one (2%) of 46 aortic valve replacements (two deaths), c) 10 (7%) of 121 coronary revascularization patients (three deaths), including 56 high risk patients. Of the 12 patients requiring inotropic support, the above principles were violated in four and five others were high risk coronary revascularizations.

We conclude that postoperative depressed myocardial performance requiring pharmacologic or mechanical circulatory support can be virtually avoided by adhering to principles of adequate cardiac protection during open heart surgery.

*By invitation

27. Dynamics of Subendocardial Flow During Cardiopul-monary Bypass

CHARLES F. REUBEN*, HARJEET SINGH*, ALFRED J. TECTOR*,

JOHN P. KAMPINE*, ROBERT J. FLEMMA and

DERWARD LEPLEY, Milwaukee, Wisconsin

Subendocardial flow was measured as temperature differential between the epicardial and subendocardium on cardiopulmonary bypass by a measured bolus of cold blood of known temperature injected into the aortic root. The probes with 0.1 millisecond time response were accurately placed in the subendocardium and epicardium, equidistant from the nearest coronary vessel. The temperature of the myocardium and blood in the aortic root were maintained constant by small variations from the heat exchanger. Flow ratios were obtained from areas under the thermal curves, integrating mean temperature change and time. D.C. operational amplifier offset the basal temperature. Subendocardial and epicardial flow ratios were recorded in 18 dogs: 1) at constant aortic root pressures during sinus rhythm and ventricular fibrillation; 2) at varying aortic root pressures during sinus rhythm; 3) at varying aortic root pressures during induced and spontaneous ventricular fibrillation.

In the non-working heart, the best flows to the subendocardium occurred consistently during sinus rhythm. Fibrillating heart at low aortic root pressure was the most disadvantageous to Subendocardial flow. High aortic root pressure during fibrillation improved Subendocardial flow. The determinants of subendocardial flow under various conditions of cardiopulmonary bypass help to explain the occurrence of Subendocardial necrosis on ischemic basis.

*By invitation

28. The Superiority of Aortic Crossclamping With Profound Local Hypothermia For Myocardial Protection During Aortocoronary Bypass Surgery

RANDALL B. GRIEPP*, EDWARD B. STINSON* and

NORMAN E. SHUMWAY, Stanford, California

Two hundred fourteen patients undergoing aortocoronary bypass grafting were allocated to two groups. In Group I (130 pts) distal anastomoses were carried out with the heart spontaneously fibrillating and the left ventricle vented. In Group II (84 pts) distal anastomoses were carried out with the aorta continuously crossclamped, and the myocardium protected by profound local hypothermia (cold saline immersion). The groups were equivalent with respect to age, sex, risk factors, and incidence of preoperative ventricular dysfunction. Postoperative LDH and SCOT were assayed, EKG's were reviewed for evidence of transmural myocardial infarction, and in a subset of each group postoperative hemodynamics were measured. Results:

	Group I	Group II	P Value
# Deaths	2	0	.3
# Transmural infarcts	18	5	.1
Post op day 1 SCOT	102	66	.001
excluding transmural infarcts	90	62	.001
Post op day 1 LDH	359	298	.001
excluding transmural infarcts	334	295	.01

Left atrial pressure (mmHg)	13.3	13	.8
Cardiac index (L/min/M^2)	2.5	2.4	.8
Cardiopulmonary bypass time (min/graft)	47	41	.001

These data indicate that in aortocoronary bypass surgery the use of aortic crossclamping and local hypothermia during performance of distal anastomoses: a) shortens operating time, b) reduces myocardial injury as assessed by serum enzyme levels, c) does not alter postoperative hemodynamics, d) possibly reduces the incidence of intraoperative myocardial infarction.
*By invitation

29. Intraoperative Unidirectional Intra-Aortic Balloon Pumping (IABP) in the Management of Left Ventricular Power Failure

DAVID BREGMAN*, EDUARDO N. PARODI*, RICHARD N. EDIE*,

FREDERICK O. BOWMAN, JR., KEITH REEMTSMA and JAMES R. MALM,

New York, New York

Left ventricular power failure and recurrent ventricular tachyarrhythmias following open heart surgery refractory to catecholamine therapy are associated with a mortality in excess of 90%. Unidirectional IABP was utilized in a group of intraoperative patients with the following criteria: (1) cardiac index < 2L/ min/M^2, (2) left atrial pressure (LAP) ‰¥ 30 mmHg, (3) systolic BP ‰¤ 80 mmHg, (4) a requirement for nigh dose inotropic support, and (5) recurrent ventricular tachyarrhythmias.

Over a 24 month period, 25 patients were assisted following open heart surgery; 84% survived acutely and 64% were long-term survivors. All patients had a prompt fall in LAP (average -18 mmHg) in conjunction with hemodynamic stability, fewer arrhythmias, and a decreased requirement for pharmacologic support. Those patients who did not respond to IABP had myocardial infarction and/or subendocardial ischemia of 80% or more of the left ventricular myocardium.

Seven patients undergoing coronary revascularization (including 3 with associated left ventricular aneurysms) required intraoperative IABP, and 6 survived and were discharged. Intraoperative coronary graft flows were measured and they increased an average of 117% with IABP over baseline values. Coronary graft flows measured with and without IABP support demonstrated an average increase of 80% (range 50-100%, median 83%). An evaluation of simultaneous phasic coronary graft flow tracings, measurements of subendocardial blood flow, and other hemodynamic parameters have confirmed the beneficial clinical and experimental responses to unidirectional IABP.

*By invitation

WEDNESDAY AFTERNOON, APRIL 16, 1975

Back to Annual Meeting Program

WEDNESDAY AFTERNOON, APRIL 16, 1975
2:00 P.M. Scientific Session

Imperial Ballroom

30. The Hemodynamic Importance of Atrial Contraction After Right Ventriculotomy

ROBERT A. GUYTON*, MICHAEL J. ANDREWS*,

LAWRENCE L. MICHAELIS* and ANDREW G. MORROW, Bethesda, Maryland

Clinical observation of the hemodynamic effects of various arrhythmias led to the hypothesis that patients with impaired right ventricular function are unusually vulnerable to the loss of an appropriately timed atrial contraction. In 6 acute canine preparations, effective atrial contraction was abolished by simultaneous atrial and ventricular (AV) pacing. At constant cardiac output, aortic pressure, and heart rate only a small rise (1.4 mm. Hg) in mean right atrial (RA) pressure was observed before a vertical right ventriculotomy; a much larger ($p < .01$) rise (9.5 mm. Hg) occurred after ventriculotomy. Right heart failure with visible and palpable tricuspid regurgitation was induced after ventriculotomy by volume overload and AV pacing. Restoration of atrial contraction (sequential AV pacing) eliminated the visible regurgitation, lowered the average mean RA pressure from 22.2 to 3.9 mm. Hg, $p < .001$, and led to a rise in average cardiac output from 2.6 to 2.8 L/min., $p < .05$. After right ventriculotomy, and at a constant RA pressure, aortic pressure, and heart rate, loss of atrial contraction resulted in a 42% reduction in cardiac output.

Eight patients who had had right ventriculotomies were studied in the early postoperative period. Abolition of effective atrial contraction by AV pacing caused an average reduction in cardiac output of 22%. In contrast, cardiac output fell only 5% in five other patients when AV pacing was instituted after aortic valve replacement ($p < .01$).

Loss of atrial contraction may have little deleterious effect on the function of the normal right heart, but in patients in whom the contractility and compliance of the right ventricle have been impaired by operation, restoration of effective atrial contraction by atrial pacing or sequential atrioventricular pacing may be of important clinical benefit.

*By invitation

31. Right Ventricular Outflow Tract Reconstruction with a Valved Conduit in 75 Cases of Congenital Heart Disease

CHARLES H. MOORE*, VALENTINO MARTELLI* and DONALD N. ROSS*, London, England

Sponsored by John Derrick, Galveston, Texas

Reconstruction of the right ventricular outflow tract using an aortic homo-graft conduit was performed in 75 patients at the National Heart Hospital, London,

from 1966 to 1974. The age range was 2 to 47 years and the types of congenital heart disease were as follows: - pulmonary atresia (35), severe tetralogy of Fallot (22), truncus arteriosus (6), transposition of great arteries (3), single ventricle (2), and tricuspid atresia (7). An early mortality of 48% has been relatively high in this most difficult group of patients: pulmonary atresia (60%), tetralogy of Fallot (32%), truncus (50%), transposition of great arteries (33%), single ventricle (100%), and tricuspid atresia (43%). Ninety percent of the cases had one or more previous shunt operations and this is a factor influencing mortality. Other factors affecting mortality include age, pulmonary vascular resistance, the surgical anatomy and surgical technical problems including bleeding, prolonged bypass, coronary artery injury and compression of the conduit by the sternum. Increased experience with the complex operative techniques should minimize surgical mortality.

Late follow-up has included a low mortality of 2.7% and good to excellent clinical results in survivors. Although calcification occurs early in the wall of the homograft, valve function has been excellent in cases followed-up to 8 years. Improved methods of homograft preparation and preservation are responsible for the continued good function of the conduit.

Our present approach in these cases is to avoid shunts, particularly aorto-pulmonary anastomoses, define the anatomy precisely with biplane still-film angiography, and to undergo total correction when severe hypoxia or effort intolerance occurs, or before increased pulmonary vascular resistance develops.

*By invitation

32. Type C Complete Atrioventricular Canal: Surgical Considerations

NOEL L. MILLS*, JOHN L. OCHSNER, TERRY D. KING*,

New Orleans, Louisiana

Eight patients with Type C A-V canal have had surgical correction at the Ochsner Clinic in the past two years. Ages range from 16 months to nine years. There were no early or late deaths. Mapping of the conduction system proved invaluable and a transient heart block occurred in only one patient. Technical guidelines are presented for a standard operation. Prior to bypass, accurate palpation of the level that the anterior common leaflet ascends and the arch that it inscribes is necessary. The major area of canal closure is allocated to the ventricular portion. Precise marking and splitting of the valve leaflets, correct reattachment of leaflets to thin, pliable patch material, and suture of the mitral cleft by % of the distance from the septal margin to the cordal attachments are mandatory. Small interrupted felt buttressed sutures avoid disruption. At recatheterization, mitral incompetence improved from III-IV/VI to 0-II/VI, and there were no residual shunts. It has been suggested the Type C A-V canal is more difficult to repair and valve replacement is often necessary. However, since we have used the present

technique of reconstruction, we have achieved consistent and reliable good results without prosthetic valves.

*By invitation

33. A New Surgical Approach for Correction of Partial Anomalous Pulmonary Venous Drainage into the Superior Vena Cava

CLAUDE CHARTRAND*, MAURICE PAYOT*,

ANDRE DAVIGNON* and PAUL STANLEY*, Montreal, Canada

Sponsored by Jacques Bruneau, Montreal, Canada

Corrective techniques for partial anomalous pulmonary venous drainage into the superior vena cava have not been adequate up to the present time; a high rate of occlusion and narrowing of the vena cava or of the pulmonary veins in addition to residual shunts have been reported in follow up studies. Nine patients aged from four to nine years had anomalous right pulmonary veins draining into the superior vena cava. Eight had an associated atrial septal defect. In two cases, a left superior vena cava was present and the right superior vena cava was small. The same surgical technique was used for all patients and consisted essentially of partitioning and enlargement of the superior vena cava. The partitioning was done in all, but in one, with a longitudinal suture starting above the highest pulmonary vein redirecting the pulmonary venous flow through the atrial septal defect into the left atrium. The anterior cavo-auricular tunnel was then enlarged by a right atrial appendage to superior vena cava angioplasty. The surgical technique will be described in detail. Follow up studies were done between fourteen and twenty-eight months (average 21) after surgery included clinical examination, ECG, X-Ray, hemodynamic and angiographic evaluation. Clinically, all patients were asymptomatic. On the angiograrns, no occlusion of the superior vena cava or of the pulmonary vessels were noted. A 25% narrowing of the superior vena cava was detected in one patient and was accompanied by a 6 mm of Hg gradient at the site of the partial stenosis; in this case, there was a left superior vena cava and the right superior vena cava was small. In another case a 4 mm anomalous pulmonary vein draining too high into the superior vena cava was left untouched. This patient has a residual left to right shunt of 11%. In all other patients, hemodynamic and angiographic data demonstrated good correction. These results are encouraging and indicate that this new technique for correction of partial anomalous pulmonary venous return into the superior vena cava is superior to those which have previously been reported by others as well as by our group.

INTERMISSION - VISIT EXHIBITS (Albert Hall)

*By invitation

34. Management of Severe Aortic Coarctation and Interrupted Aortic Arch in Neonates

MERRILL H. BRONSTEIN*, NOEL H. FISHMAN, BENSON B. ROE,

L. HENRY EDMUNDS, JR. and ABRAHAM M. RUDOLPH*,

San Francisco, California

The medical and surgical treatment of aortic coarctation and interrupted aortic arch in the neonatal period and early infancy has been previously associated with a high mortality rate (40-60%).

Thirty-seven infants, age range 2-42 days, with severe aortic arch obstructive lesions underwent emergency surgery between 1966 and 1974. Indications for catheterization and operation were abrupt onset of severe congestive heart failure and acidemia usually secondary to spontaneous closure of the ductus arteriosus which constricted blood flow to the lower body.

Resection of coarctation with end-to-end anastomosis was performed in 25 patients. Death in 7 (28%) was related to technical problems (2), postoperative complications (3), or associated lesions (2). Recoarctation developed in 3. Since 1969, the operative mortality has been reduced to 13% (2/15).

Twelve infants underwent various surgical procedures for interrupted aortic arch, 8 Type I and 4 Type II. All had large VSD's; associated pulmonary artery banding was performed in 10. Severe additional intracardiac anomalies were present in 5. Seven patients (5 Type I, 2 Type II) survived.

Two infants with interrupted aortic arch were treated by surgical techniques previously undescribed. In one, a long tubular hypoplastic isthmus was restored to normal caliber using the incised subclavian artery as a pedicle patch; in the second, with Type II interruption, continuity of flow was restored by end-to-end anastomosis between the left common carotid artery and descending aorta. The patient's VSD was successfully closed on cardiopulmonary bypass at 6 months.

*By invitation

35. Ascending Aorta to Right Pulmonary Artery Shunt: Experience With 80 Patients

CHARLES A. CAVALLO*, F. S. IDRISS, R. KOOPOT*,

H. NIKAIDOH* and MILTON H. PAUL*, Chicago, Illinois

Ascending aorta to right pulmonary artery shunt (Waterston-Cooley) has been successfully used to increase pulmonary artery flow in different types of congenital heart disease. In order to assess the specific technical and hemodynamic problems inherent to this procedure we reviewed our experience in 80 patients. Their ages ranged from 1 day to 13 years. Forty-nine patients had tetralogy of Fallot, 13 transposition of the great vessels with pulmonary stenosis, 5 tricuspid atresia, 11 isolated pulmonary atresia, 1 Ebstem anomaly with pulmonary stenosis, and 1 A-V canal with pulmonary stenosis. In 27 patients the shunt procedure was performed using an approach posterior to the superior vena cava (Waterston) while in 50 patients the approach was anterior to the superior vena cava (Cooley). Three patients with a previously established shunt were referred for complete repair. The overall hospital mortality was 18%, 12 of the 14 deaths occurring in infants younger than 6 months of age. The majority of patients had varying degrees of differential blood flow between the right and left pulmonary artery noted on the chest roentgenogram with no remarkable difference between the two techniques. Ten patients have undergone subsequent takedown of the shunt with intracardiac repair. There was no hospital or late mortality in this group. In two patients the shunt was closed through the aorta while in the remaining 8 the right pulmonary artery was detached from the aorta at the shunt site in order to repair the pulmonary artery with an artenoplasty or enlarge it with a pericardial patch. In this study we found that in addition to the inherent hemodynamic problem of a left to right shunt, the ascending aorta to right pulmonary artery shunt causes distortion of the right pulmonary artery, producing a differential pulmonary flow regardless of the type of approach, and necessitating detaching the pulmonary artery from the aorta in order to accomplish a satisfactory repair. Because of these various difficulties, we would recommend that primary repair be performed whenever possible rather than this palliative shunt followed by later correction.

*By invitation

GEOGRAPHICAL ROSTER

Back to Annual Meeting Program

The American Association for Thoracic Surgery, 1974-1975

(Listed by Countries, States, Provinces and Cities)

Geographical

UNITED STATES

ALABAMA Irvine

Birmingham

Kessler, Charles R.

Kirklin, John W.

Kouchoukos, Nicholas

Montgomery

Simmons, Earl M.

ALASKA

Anchorage

Phillips, Francis J.

ARIZONA

Phoenix

Brown, Lee B.

Carlson, Robert I.

Nelson, Arthur R.

Sun City

Read, C. Thomas

Tucson

Burbank, Benjamin

Melick, Dermont W.

Sanderson, Richard G.

ARKANSAS

Jasper

Hudson, W. A.

Little Rock

Campbell, Gilbert S.

McPhail, Jasper L.

Read, Raymond C.

CALIFORNIA

Anaheim

Main, F. Beachley

Arcadia

Silver, Arthur W.

Artesia

Hewlett, Thomas H.

Connolly, John E.

Miller, Don R.

La Canada

Aronstam, Elmore M.

Laguna Niguel

Oatway, William H., Jr

LaJolla

Hutchin, Peter

LaMesa

Long, David M.

Loma Linda

Wareham, Ellsworth E.

Long Beach

Bloomer, William E.

Carlson, Herbert A.

Stemmer, Edward A.

Los Angeles

Baisch, Bruce F.

Brewer, Lyman A., Ill

Buckberg, Gerald D.

Fonkalsrud, Eric W.

Goldman, Alfred

Jones, John C.

Kay, Jerome Harold

Lindesmith, George G.

Longmire, William P., Jr.

Maloney, James V., Jr.

Matloff, Jack M.

Meyer, Bert W.

Morton, Donald L.

Mulder, Donald G.

Ramsay, Beatty H.

Rigler, Leo G.

Stiles, Quentin R.

Barstow

French, Sanford W., Ill

Carmel

Bisgard, J. Dewey

Daniels, Albert C.

Davis

Andrews, Neil C.

Fresno

Evans, Byron H.

Oakland

Dugan, David J.

Ecker, Roger R.

May, Ivan A.

Oxnard

Dart, Charles H., Jr.

Pacific Palisades

Weinberg, Joseph A.

Palm Desert

Julian, Ormand C.

Torrance

Palo Alto

Cohn, Roy B.

Jamplis, Robert W.

Wilson, John L.

Pasadena

Cotton, Bert H.

Hughes, Richard K.

Ingram, Ivan N.

Penido, John R. F.

Piedmont

Samson, Paul C.

Sacramento

Hurley, Edward J.

Miller, George E., Jr.

Smeloff, Edward A.

San Bernardino

Flynn, Pierce J.

Moersch, Richard

San Diego

Baronofesky, Ivan D.

Chambers, John S., Jr.

Behfield, John R.

Moore, Thomas C.

State, David

W. Covina

Carter, Paul Richard

COLORADO

Denver

Blair, Emil

Brown, Robert K.

Condon, William B.

Eiseman, Ben

Grow, John B.

Harper, Frederick R.

Hopeman, Alan R.

Kovarik, Joseph L.

Newman, Melvin M.

Pappas, George

Paton, Bruce C.

Rainer, W. Gerald

Swan, Henry

Fosburg, Richard G.

Peters, Richard M.

Trummer, Max J.

San Francisco

Culiner, Morris M.

Davis, Lowell L.

Faulkner, William B., Jr.

Fishman, Noel Herbert

Gardner, Richard E.

Gerbode, Frank

Primes, Orville F.

Hill, J. Donald

Holman, Emile

Kerth, William J.

Leeds, Sanford E.

Richards, Victor

Rogers, W. L.

Roe, Benson B.

Stephens, H. Brodie

Thomas, Arthur N.

Santa Ana

Gazzaniga, Alan B.

Salyer, John M.

San Jose

Angell, William W.

Santa Barbara

Higginson, John F.

Jahnke, Edward J., Jr.

Santa Monica

Carey, Joseph S.

Stanford

Mark, James B. D.

Shumway, Norman E.

Thousand Oaks

Waddell, William R.

Englewood

Pomerantz, Marvin

CONNECTICUT

Hartford

Kemler, R. Leonard

New Haven

Carter, Max G.

Glenn, William W. L.

Hammond, Graeme L.

Stansel, Horace C., Jr.

Stern, Harold

Norwalk

Pool, John L.

Norwich

Kelley, Winfield O.

Branford

Lindskog, Gustaf E.

DELAWARE

Wilmington

Pecora, David V.

DISTRICT OF COLUMBIA

Washington

Adkins, Paul C.

Blades, Brian

Hufnagel, Charles A.

Iovine, Vincent M.

Keshishian, John M.

Klepser, Roy G.

McClenathan, James E.

Peabody, Joseph W., Jr.

Randolph, Judson G.

Smyth, Nicholas P. D.

Tsuji, Harold K.

FLORIDA

Clearwater

Lasley, Charles H.

Delray Beach

Geary, Paul

Fort Myers

Malette, William G.

Campbell, Daniel C.

Gainesville

Bartley, Thomas

Daicoff, George R.

Moulder, Peter V.

Jacksonville

Gilbert, Joseph W., Jr.

Stephenson, Sam E., Jr.

Lakeland

Brown, Ivan W., Jr.

Miami

Bolooki, Hooshang

Center, Sol

Chesney, John G.

Cooke, Francis N.

Daughtry, Dewitt C.

Gentsch, Thomas O.

Greenberg, Jack J.

Jude, James R.

Kaiser, Gerard A.

Papper, Emanuel M.

Spear, Harold C.

Swenson, Orvar

Naples

Linberg, Eugene J.

King, Richard

Logan, William D., Jr.

Rivkin, Laurence M.

Symbas, Panagiotis N.

Augusta

Ellison, Robert G.

Chamblee

Perkins, Rex B.

Savannah

Yeh, Thomas J.

HAWAII

Honolulu

Gebauer, Paul

Kailua

McNamara, Joseph J.

Kealakekua

Fell, Egbert H.

IDAHO

Boise

Ashbaugh, David G.

Herr, Rodney H.

ILLINOIS

Chicago

Anagnostopoulos, Constantine

Barker, Walter L.

Faber, L. Penfield

Hanlon, C. Rollins

Head, Jerome R.

Head, Louis R.

Holinger, Paul H.

Hudson, Theodore R.

Hunter, James A.

Orlando

Sherman, Paul H.

Pompano Beach

Maurer, Elmer P. R.

Ponte Vedra Beach

Stranahan, Allan

St. Petersburg

Clerf, Louis H.

DeMatteis, Albert

Tallahasee

Kraeft, Nelson H.

Tampa

Blank, Richard H.

Connar, Richard G.

Seller, Hawley H.

Winter Park

Bloodwell, Robert D.

GEORGIA

Atlanta

Abbott, Osier

Fleming, William A.

Hatcher, Charles R., Jr.

Hopkins, William A.

Idriss, Farrouk S.

Javid, Hushang

Jensik, Robert J.

Leininger, Bernard J.

Levitsky, Sidney

Lewis, F. John

Mackler, S. Allen

Najafi, Hassan

Raffensperger, John G.

Replogle, Robert Lee

Shields, Thomas W.

Skinner, David B.

Weinberg, Milton, Jr.

Evanston

Dorsey, John M.

Fry, Willard A.

Kittle, C. Frederick

Glencoe

Rubenstein, Laurence H.

Hines

Keeley, John L.

Lincolnwood

Lees, William M.

Louisville

Maywood

Pifarre, Roque

Oak Brook

Nigro, Salvatore L.

Paris

Pratt, Lawrence

Peoria

Collins, Harold A.

Bryant, J. Ray

Harter, John S.

Mahaffey, Daniel E.

Ransdell, Herbert T., Jr.

Wheat, Myron W., Jr.

LOUISIANA

Alexandria

DeBord, Robert A.

Skokie

Baffes, Thomas G.

Winnetka

Langston, Hiram T.

Glenview

Fox, Robert T.

INDIANA

Indianapolis

Battersby, James S.

King, Harold

King, Robert D.

Mandelbaum, Isidore

Shumacher, Harris B., Jr.

Siderys, Harry

South Bend

Van Fleit, William E.

IOWA

Cedar Rapids

Lawrence, Montague S.

Des Moines

Dorner, Ralph A.

Watkins, David H.

Iowa City

Doty, Donald B.

Ehrenhaft, Johann L.

Rossi, Nicholas P.

KANSAS

Cunningham

Allbritten, Frank F.

Kansas City

Friesen, Stanley R.

Reis, Robert L.

Shawnee Mission

Knoepp, Louis F.

Baton Rouge

Beskin, Charles A.

Metairie

Ochsner, Alton, Jr.

New Orleans

Blalock, John B.

Bryant, Lester R.

DeCamp, Paul T.

Drapanas, Theodore

Glass, Bertram A.

Hewitt, Robert Lee

Lindsey, Edward S.

Ochsner, Alton

Ochsnerjohn L.

Pearce, Charles W.

Rosenberg, Dennis M.

Schramel, Robert J.

Strug, Lawrence H.

MAINE

Liberty

Hurwitz, Alfred

Portland

Drake, Emerson H.

Hiebert, Clement A.

MARYLAND

Baltimore

Attar, Safuh M. A.

Brantigan, Otto C.

Cowley, R. Adams

Gott, Vincent L.

Haller, J. Alex, Jr.

Mason, G. Robert

McLaughlin, Joseph S.

Reed, William A.

Wichita

Tocker, Alfred W.

Winfield

Snyder, Howard E.

KENTUCKY

Lexington

Crutcher, Richard R.

Dillon, Marcus L.

Utley, Joe R.

Worton

Walkup, Harry E.

MASSACHUSETTS

Boston

Adams, Herbert D.

Austen, W. Gerald

Badger, Theodore L.

Barsamian, Ernest M.

Beecher, Henry K.

Berger, Robert L.

Bernhard, William F.

Black, Harrison

Bougas, James A.

Boyd, David P.

Braunwald, Nina S.

Buckley, Mortimer J.

Burke, John F.

Castaneda, Aldo R.

Cleveland, Richard J.

Clowes, George H. A., Jr.

Collins, John J., Jr.

Daggett, Willard Manning

Michelson, Elliott

Rienhoff, William F., Jr.

Turney, Stephen Z.

Wilder, Robert J.

Bethesda

Curreri, Anthony R.

Dennis, Clarence

Mills, Mitchell

Morrow, Andrew G.

Kensington

Simmons, Robert L.

Newton Center

Gaensler, Edward A.

Newton Lower Falls

Laforet, Eugene G.

Lynch, Joseph P.

Strieder, John W.

Swampscott

Miller, Carroll C.

Wayland

Lefemine, Armand A.

MICHIGAN

Ann Arbor

Gago, Otto

Kirsh, Marvin M.

Morris, Joe D.

Sloan, Herbert

Benton Harbor

Lui, Alfred H. F.

Detroit

Arbulu, Agustin

Day, J. Claude

Davila, Julio C.

Deterling, Ralph A., Jr.

Ellis, F.Henry, Jr.

Frank, Howard A.

Grille, Hermes C.

Gross, Robert E.

Harken, Dwight E.

Mundth, Eldred D.

Nardi, George L.

Neptune, Wilford B.

Overholt, Richard H.

Rheinlander, Harold F.

Russell, Paul S.

Scannell, J. Gordon

Schuster, Samuel R.

Starkey, George W. B.

Watkins, Elton, Jr.

Wilkins, Earle W., Jr.

Woods, Francis M.

Brookline

Madoff, Irving M.

Malcolm, John A.

Chestnut Hill

Benedict, Edward B.

Concord

Sautter, Lamar

Maiden

Boyd, Thomas F.

Desforges, Gerard

Taylor, Warren J.

Methuen

Wilson, Norman J.

Nantucket

Mahoney, Earle B.

Dodrill, Forest Dewey

Lam, Conrad R.

McDonald, John R.

Wilson, Robert F.

East Lansing

Gonzalez-Lavin, Lorenzo

Grand Rapids

Harrison, Robert W.

Meade, Richard H.

Rasmussen, Richard A.

Grosse Pointe

Gerbasi, Francis S.

Grosse Pointe Shores

Mannix, Edgar P., Jr.

Grosse Pointe Woods & Farms

Benson, Clifford D.

Taber, R. E.

Kalamazoo

Neerken, Adrian J.

Southfield

Barrett, Raymond J.

Royal Oak

Timmis, Hilary H.

MINNESOTA

Duluth

Fuller, Josiah

Minneapolis

Garamella, Joseph J.

Humphrey, Edward W.

Jensen, Nathan K.

Johnson, Frank E.

Kiser, Joseph C.

Lillehei, Richard C.

Myers, J. Arthur

Varco, Richard L.

Wangensteen, Owen H.

Rochester

Bernatz, Philip E.

Clagett, O. Theron

Danielson, Gordon K., Jr.

McGoon, Dwight C.

Olsen, Arthur M.

Payne, W. Spencer

Wallace, Robert B.

St. Paul

Leven, N. Logan

Miller, Fletcher A.

Perry, John F., Jr.

MISSISSIPPI

Jackson

Hardy, James D.

Johnston, J. Harvey, Jr.

Neely, William A.

Netterville, Rush E.

MISSOURI

Columbia

Almond, Carl H.

Kansas City

Adelman, Arthur

Benoit, Hector W.

Buckingham, William W.

Holder, Thomas M.

Killen, Duncan A.

Mayer, John H., Jr.

St. Louis

Barner, Hendrick Boyer

Baue, Arthur E.

NEW JERSEY

East Orange

Auerbach, Oscar

Gerard, Franklyn P.

Hillsdale

Amberson, J. B.

Jersey City

Timmes, Joseph J.

Moorestown

Morse, Dryden, P.

Newark

Neville, William E.

New Brunswick

Kunderman, Philip J.

Pennsauken

Camishion, Rudolph C.

Pierucci, Louis, Jr.

Piscataway

Mackenzie, James W.

Short Hills

Demos, Nicholas J.

Trenton

Sommer, George N., Jr.

NEW MEXICO

Albuquerque

Edwards, W. Sterling

Las Vegas

Thai, Alan P.

Santa Fe

Wilson, Julius L.

NEW YORK

Albany

Alley, Ralph D.

Kausel, Harvey W.

Bergmann, Martin

Burtord, Thomas H.

Clark, Richard E.

Ferguson, Thomas B.

Geha, Alexander S.

Kaiser, George C.

Lewis, J. Eugene, Jr.

Lucido, Joseph L.

Roper, Charles L.

Weldon, Clarence S.

Willman, V. L.

NEBRASKA

Omaha

Sellers, Robert D.

NEW HAMPSHIRE

Hanover

Tyson, M. Dawson

Bay Shore

Ryan, Bernard J.

Binghamton

Williams, Mark H.

Bronx

Bloomberg, Allan E.

Friedlander, Ralph

Hirose, Teruo

Robinson, George

Bronxville

Prater, Robert W. M.

Brooklyn

Garzon, Antonio A.

Levowitz, Bernard S.

Potter, Robert T.

Sawyer, Philip N.

Buffalo

Adler, Richard H.

Andersen, Murray N.

Lajos, Thomas Z.

Leahy, Leon J.

MacManus, Joseph E.

Cooperstown

Blumenstock, David A.

Elmira

Tillou, Donald J.

Great Neck, L.I.

Crastnopol, Philip

Ripstein, Charles B.

Huntington

Heroy, William W.

Mineola

Mangiardi, Joseph L.

Seley, Gabriel P.

Spencer, Frank C.

Thompson, Samuel A.

Tice, David A.

Veith, Frank J.

Watson, William L.

Wichern, Walter A., Jr.

Wolff, William I.

Wylie, Robert H.

Patchogue

Finnerty, James

Port Washington

Johnson, Elgie K.

New York

Aberdeen, Eoin

Aufses, Arthur H.

Bailey, Charles P.

Beattie, Edward J., Jr.

Berry, Frank B.

Bloch, Robert G.

Bowman, Frederick O., Jr.

Boyd, Arthur D.

Cahan, William G.

Ching, Nathaniel P. H.

Clauss, Roy H.

Cook, William A.

Cournand, Andre

Cracovaner, Arthur J.

Davidson, Louis R.

Ebert, Paul A.

Findlay, Charles W., Jr.

Fischer, Walter W.

Fitzpatrick, Hugh F.

Ford, Joseph M.

Gerst, Paul H.

Gianelli, Stanley, Jr.

Glenn, Frank

Green, George E.

Holman, Cranston W.

Holswade, George R.

Humphreys, George H., II

Jaretzki, Alfred III

Kirschner, Paul A.

Lambert, Adrian

Lillehei, C. Walton

Litwak, Robert S.

Maier, Herbert C.

Poughkeepsie

Douglass, Richmond

Rochester

DeWeese, James A.

Schwartz, Seymour I.

Zaroff, Lawrence I.

Rockville Centre

Wesolowski, Sigmund A.

Roslyn

Thomson, Norman B., Jr.

Saranac Lake

Decker, Alfred M.

Merkel, Carl G.

Scottsville

Emerson, George L.

Stony Brook

Soroff, Harry S.

Syracuse

Bugden, Walter F.

Webb, Watts R.

Tonawanda

Kaunitz, Victor H.

NORTH CAROLINA

Asheville

Scott, Stewart M.

Chapel Hill

Wilcox, Benson R.

Charlotte

Robicsek, Francis

Taylor, Frederick H.

Durham

Hart, Deryl

Sabiston, David C.

Sealy, Will C.

Malm, James R.

Martini, Nael

Nealon, Thomas F., Jr.

Okinaka, Arthur J.

Redo, S. Frank

Reed, George E.

Reemtsma, Keith

Rubin Morns

Sarot, Irving A.

Silver, Donald

Smith, David T.

Young, W. Glenn

Greensboro

Deaton, W. Ralph, Jr.

Oteen

Betts, Reeve H.

Takaro, Timothy

Winston-Salem

Cordell, A. Robert

Hudspeth, Allen S.

Johnston, Frank R.

Meredith, Jesse H.

OHIO

Akron

Falor, William H.

Chardon

Mautz, F. R.

Cincinnati

Carter, B. Noland

Gonzalez, Luis L.

Helmsworth, James A.

Rosenkrantz, Jens G.

Cleveland

Ankeney, Jay L.

Cross, Frederick S.

Effler, Donald B.

Groves, Laurence K.

Kay, Earle B.

Loop, Floyd

Mendelsohn, Harvey J.

Wright, George W.

PENNSYLVANIA

Bethlehem

Snyder, John M.

Gladwyne

Flick, John B.

Johnson, Julian

Hamburg

Judd, Archibald R.

Hershey

DeMuth, William E., Jr.

Waldhausen, John A.

Lancaster

Witmer, Robert H.

Harberth

Burnett, W. Emory

Havertown

Chodoff, Richard J.

Hershey

Pierce, William S.

Philadelphia

Brockman, Stanley K.

Edmunds, L. Henry, Jr.

Fineberg, Charles

Haupt, George J.

Columbus

Clatworthy, H. William

Klassen, Karl P.

Meckstroth, Charles V.

Kilman, James William

Sirak, Howard D.

Vasko, John Stephen

Dayton

DeWall, Richard A.

Toledo

Blakemore, William S.

Selman, Morris W.

OKLAHOMA

Oklahoma City

Felton, Warren L., II

Greer, Allen E.

Munnell, Edward R.

Williams, G. Rainey

Zuhdi, M. Nazih

Tulsa

Leibovitz, Martin

OREGON

Portland

Poppe, J. Karl

Starr, Albert

Roseburg

Miller, Arthur C.

Lemmon, William M.

MacVaugh, Horace

Mendelssohn, Edwin

Nemir Paul Jr.

O'Neill, Thomas

Rosemond, George P.

Stayman, Joseph W.

Templeton, John W., III

Thomas, Paul A.

Wallace, Herbert W.

Willauer, George

Pittsburgh

Bahnson, Henry T.

Ford, William B.

Magovern, George J.

Pontius, Robert G.

Rams, James J.

Ravitch, Mark M.

Sanes, Gilmore M.

Steichen, Felicien M.

Rydal

Frobese, Alfred S.

Sayre

Sewell, William H.

Wynnewood

McKeown, John J.

RHODE ISLAND

Providence

Karlson, Karl E.

Simeone, Fiorindo A.

SOUTH CAROLINA

Charleston

Bradham, R. Randolph

Kee, John L., Jr.

Lambert, Cary J.

Mitchel, Ben F., Jr.

Hairston, Peter

Lee, William H., Jr.

Parker, Edward F.

Columbia

Ryan, Thomas C.

Mt. Pleasant

Thrower, Wendall B.

TENNESSEE

Chattanooga

Adams, Jesse E., Jr.

Hall, David P.

Jackson

Chandler, John H.

Knoxville

Blake, Hu Al

Domm, Sheldon E.

Waterman, David H.

Memphis

Carr, Duane

Cole, Francis H.

Eastridge, Charles E.

Garrett, H. Edward

Howard, Hector S., Jr.

Hughes, Felix A.

McBurney, Robert P.

Pate, James W.

Robbins, S. Gwin

Rosensweig, Jacob

Skinner, Edward F.

Nashville

Bender, Harvey W., Jr.

Dale, W. Andrew

Daniel, Rollin A.

Diveley, Walter L.

Paulson, Donald L.

Razzuk, Maruf A.

Shaw, Robert R.

Sugg, Winfred L.

Urschel, Harold C., Jr.

Wilson, Hugh E., III

Fort Worth

Johnson, Clive R.

Galveston

Derrick, John R.

Padula, Richard T.

Tyson, Kenneth R. T.

Houston

Beall, Arthur C., Jr.

Burdette, Walter J.

Cooley, Denton A.

Crawford, E. Stanley

De Bakey, Michael E.

Hallman, Grady L., Jr.

Henly, Walter S.

Kennedy, John Hines

Morris, George C., Jr.

Norman, John C.

Overstreet, John Wm.

Seybold, William D.

La Porte

Barkley, Howard T.

Lubbock

Dalton, Martin L., Jr.

San Antonio

Dooley, Byron M.

Heaney, John P.

Nixon, James W.

Proctor, Oscar S.

Foster, John H.

Gobbell, Walter G., Jr.

Johnson, Hollis E.

Sawyers, John L.

Scott, Henry W., Jr.

TEXAS

Austin

Hood, R. Maurice

Ross, Raleigh R.

Beaumont

Harrison, Albert W.

Cotulla

Hood, Richard H.

Dallas

Adam, Maurice

Davis, Milton V.

Holland, Robert H.

Stanford, William

Trinkle, J. Kent

Temple

Brindley, G. Valter

Weslaco

Dailey, James E.

UTAH

Salt Lake City

Cutler, Preston R.

Liddle, Harold Venable

Mortensen, J. D.

Nelson, Russell M.

Rumel, William R.

Wolcott, Mark W.

VERMONT

Burlington

Miller, Donald B.

White River Junction

Crandell, Walter B.

VIRGINIA

Arlington

Conrad, Peter W.

Charlottesville

Dammann, John F.

Drash, Everett C.

Minor, George R.

Muller, William H., Jr.

Nolan, Stanton Peele

Lynchburg

DeNiord, Richard N.

Moore, Richmond L.

Richmond

Mills, Waldo O.

Pinkham, Roland D.

Sauvage, Lester R.

Thomas, George I.

Spokane

Berg, Ralph, Jr.

WEST VIRGINIA

Charleston

Walker, James H.

Morgantown

Tarney, Thomas J.

Warden, Herbert E.

WISCONSIN

Green Bay

Vorwald, Arthur J.

Bosher, Lewis H.

Brooks, James W.

Cole, Dean B.

Greenfield, Lazar J.

Gwathney, Owen

Johns, Thomas N. P.

Lower, Richard R.

WASHINGTON

Seattle

Bell, John W.

Cantrell, James R.

Dillard, David H.

Hill, Lucius D.

Jarvis, Fred J.

Jones, Thomas W.

Lawrence, G. Hugh

Merendino, K. Alvin

La Crosse

Gunderson, A. Erik

Madison

Kahn, Donald R.

Young, William P.

Marshfield

Sautter, Richard D.

Milwaukee

Flemma, Robert J.

Hausmann, Paul F.

Johnson, W. Dudley

Lepley, Derward, Jr.

Litwm, S. Bertrand

Narodick, Benjamin G.

Pemberton, Albert H.

Weisel, Wilson

CANADA

ALBERTA

Calgary

Miller, George E.

Edmonton

Callaghan, John C.

Meltzer, Herbert

Sterns, Laurence P.

BRITISH COLUMBIA

Vancouver

Allen, Petei

Ashmore, Phillip G.

Harrison, Elliott

West Vancouver

Robertson, Ross

Victoria

Stenstrom, John D.

MANITOBA

NEW BRUNSWICK

St. John

Skinner, George F.

NEWFOUNDLAND

St. Anthony

Thomas, Gordon W.

St. Johns

Brownrigg, Garrett M.

Couves, Cecil M.

Littlefield, James B.

NOVA SCOTIA

Kentville

Quinlan, John J.

ONTARIO

Hamilton

Sullivan, Herbert J.

London

Winnipeg

Barwinsky, Jaroslaw

Cohen, Morely

Heimbecker, Raymond O.

Sudbury

Field, Paul

Walker, George R.

Toronto

Baird, Ronald J.

Bigelow, Wilfred G.

Delarue, Norman C.

Goldman, Bernard S.

Joynt, George H. C.

Kergin, Frederick G.

Key, James A.

Lockwood, A. L.

Mustard, William T.

Pearson, Frederick G.

Trimble, Alan S.

Trusler, George A.

Westbrook

Lynn, R. Beverley

Woodbridge

Laird, Robert

QUEBEC

Montreal

Blundell, Peter E.

Bruneau, Jacques

Dobell, Anthony R. D.

Gagnon, Edouard D.

Grondin, Pierre

Kunstler, Walter E.

Lepage, Gilles

MacLean, Lloyd D.

McIntosh, Clarence A.

Scott, Henry J.

Vineberg, Arthur M.

Quebec City

Gravel, Joffre-Andre

OTHER COUNTRIES

ARGENTINA

Buenos Aires

Favaloro, Rene G.

BRAZIL

Sao Paulo

Zerbini, E. J.

GUATEMALA

Guatemala City

Herrera, Rodolfo

MEXICO

Michoacan

Eloesser, Leo

GREAT BRITAIN

ENGLAND

Bristol

Belsey, Ronald

Hamden Row

Sellers, Sir Thomas Holmes

Surrey

Barrett, Norman R.

Warwickshire

D'Abreu, A. L.

SCOTLAND

Llowes, Hereford

Thompson, Vernon

London

Brock, Russell C.

Edinburgh

Logan, Andrew

EUROPE

HOLLAND	SWEDEN	SWITZERLAND
Amsterdam	Stockholm	Geneva
Boerema, I.	Bjork, Viking Olov	Tricerri, Fernando E.
Leiden	Crafoord, Clarence	Zurich
Brom, A. Gerard		Senning, Ake

INDIA

Bikaner, Rajputana

Van Allen, Chester M.

Noakhali, Bangladesh

McCord, Colin W.

JAPAN

Tokyo

Sakakibara, Shigeru

BYLAWS

Back to Annual Meeting Program

CONSTITUTION OF

THE AMERICAN ASSOCIATION FOR THORACIC SURGERY

As amended to April 23, 1974

ARTICLE I. Name

Section 1. This Association shall be known as The American Association for Thoracic Surgery.

ARTICLE II. Object

Section 1. The object of the Association shall be to encourage and stimulate investigation and study that will increase the knowledge of intrathoracic physiology, pathology, and therapy, to correlate such knowledge and disseminate it.

Section 2. To attain this object, the Association shall hold at least one scientific meeting every year in which free discussion shall be featured; shall conduct a Journal for the publication of the papers presented at this meeting, and other acceptable articles; and shall undertake such other activities as the Council or the Association as a whole may decide.

ARTICLE III. Membership

Section 1. There shall be four classes of members: Honorary, Senior, Active and, for a time, Associate. Admission to membership in the Association shall be by election. Membership shall be limited, the limits on the respective classes to be determined by the By-laws. Only Active and Senior Members shall have the privilege of voting or holding office, except as provided by the By-laws.

Section 2. Election to Honorary, Senior or Active Membership shall be for life, subject to the provisions of Section 3 following. Starting with the 1970 annual meeting, there shall be no further additions to the Associate Membership. All new members shall be elected directly to Honorary or Active status. Associate Membership shall be continued for a limited period of time as determined by the By-laws.

Section 3. Membership may be voluntarily terminated at any time by members in good standing. The Council, acting as a Board of Censors, may recommend the expulsion of a member on the grounds of moral or professional delinquency, and submit his name, together with the grounds of complaint, to the Association as a whole at any of the regularly convened meetings, after giving the member so accused ample opportunity to appear in his own behalf.

ARTICLE IV. Officers and Government

Section 1. The officers of the Association shall be a President, a Vice-President, a Secretary, a Treasurer, and Editor, and five Councilors. These ten officers and councilors shall be the governing body of the Association, and shall have full power to act on all matters, except as follows:

1. They may not alter the initiation fees or annual dues, nor levy any general assessments against the membership, except that they may, in individual cases, remit annual dues or assessments.
2. They may in no wise change the Constitution or By-Laws.
3. They may neither elect new members nor alter the status of existing members, other than to apply the provisions of Article III, Section 3.

4. They may not deplete the principal of the Endowment Fund.

Section 2. Officers and Councilors shall be elected at the annual meeting of the Association, and shall take office upon conclusion of the meeting. The President and the Vice-President shall be elected for a one-year term of office and neither may be re-elected to succeed himself in the same office. The Secretary, and Treasurer, and the Editor shall be elected for a one-year term of office, and any or all may be re-elected indefinitely. The outgoing President shall automatically become a Councilor for a one-year term of office. The other four Councilors shall be elected, one each year, for a four-year term of office, but no Councilor may be re-elected to succeed himself.

Section 3. Vacancies occurring among the officers and councilors during the year shall be temporarily filled by action of the Council, subject to approval of the Association at the next regularly convened meeting.

ARTICLE V. Committees

Section 1. At the opening session of the annual meeting there shall be elected, after nomination from the floor of the Association, a Nominating Committee of three. This Committee shall prepare a slate of nominees for officers and councilors and shall present their report at the Executive Session of the Association.

Section 2. The Council is empowered to appoint a Membership Committee, an Auditing Committee, a Program Committee, a Necrology Committee, and such other committees as may in its opinion be necessary. All such committees shall render their report at the Executive Session of the Association.

Section 3. The Editor is empowered to appoint an Editorial Board, subject only to the approval of the Council.

Section 4. The Association as a whole may authorize the Council to appoint Scientific or Research Committees for the purpose of investigating thoracic problems and may further authorize the Council to support financially such committees to a limited degree. In appointing such committees, the Council shall be governed by the provisions of the By-Laws.

ARTICLE VI. Finances

Section 1. The fiscal year of the Association shall coincide with a calendar year. The books of the Association shall be kept and audited on this basis.

Section 2. Members shall contribute to the financial maintenance of the Association through' the medium of initiation fees, annual dues, and special assessments. The amount of the annual dues and the initiation fees shall be determined by the By-Laws.

If, at the end of any fiscal year, there be a deficit in the current funds of the Association, the Council may send out notices to that effect and invite Active members to contribute the necessary amount so that no deficit be carried over from one fiscal year to another. The Association may, in any regularly convened meeting, vote a special assessment for any purpose consistent with the objects of the Association (Article II), and such special assessment shall become an obligatory charge against the classes of members affected thereby.

Section 3. To meet the current expenses of the Association, there shall be available all revenue derived from annual dues, special assessments, and income from the Endowment Fund, subject to the provisions of Section 4, following. Funds derived from the payment of initiation fees shall not be available for current expenses.

Section 4. All funds derived from the payment of initiation fees shall be placed in a special fund, to be invested and reinvested in legal securities, to be held intact, and to be known as the Endowment Fund. The Council is responsible for the proper management of the Endowment Fund, and may divert any surplus in the current funds of the Association into

this fund, but may not withdraw any of the principal of the Endowment Fund except in accordance with the provisions of Section 6, following.

Section 5. The income from the Endowment Fund shall be expended as the Council directs.

Section 6. The principal of the Endowment Fund may be withdrawn, in whole or in part, under the following conditions only: The amount of principal to be withdrawn shall have been approved by the Council; it shall have been approved by a majority of the members present and voting at a regularly convened annual meeting; it shall have been tabled for one year; it shall have been finally passed by a three-fourths vote of the members present and voting at the next regularly convened annual meeting.

Section 7. In the event of the dissolution of the Association, the Endowment Fund shall be distributed among national institutions of the United States and Canada in a proportion equal to the then existing ratio between the numbers of citizens of the two nations who are members of the Association.

ARTICLE VII. Meetings

Section 1. The time, place, duration, and procedure of the annual meeting of the Association shall be determined by the Council, and the provisions of the By-Laws.

Section 2. A special meeting of the Association may be called on one month's notice on the written request of fifteen members. The specific purposes of the meeting must be stated in the request and in the official call for the meeting.

Section 3. There shall be an annual meeting of the Council.

ARTICLE VIII. Amendments

Section 1. This Constitution shall in no wise be changed except by a three-fourths vote of the members present at an annual meeting, and further provided that the proposed alteration or amendment shall have been moved and seconded at a previous annual meeting, and that printed copies of the suggested alteration or amendment shall have been circulated among the members, and that the members shall have been specifically advised that such alteration or amendment will be voted upon.

BY-LAWS

ARTICLE I.

Section 1. These By-Laws shall merely interpret the Constitution and specifically apply its principles. They shall set forth no principles not included in the Constitution.

ARTICLE II.

Section 1. All papers read before the Association shall become the property of the Association. Authors shall leave original copies of their manuscripts with the Editor or Reporter, at the time of presentation, for publication in the official journal.

Section 2. When the number of papers makes it desirable, the Council may require authors to present their papers in abstract, and may set a time limit on discussions.

Section 3. Members are urged to cooperate with all Scientific Committees of the Association.

Section 4. Attendance at Annual Meetings and participation in the scientific programs shall be optional for all Honorary and Senior Members, but it shall be expected from all Active and Associate Members.

Section 5. While the scientific session of the annual meeting is held primarily for the benefit of the members of the Association, it may be thrown open to nonmembers who are able to submit satisfactory credentials, who register in a specified manner, and who pay such registration fee as may be determined and published by the Council from year to year.

ARTICLE III.

Section 1. Candidates for membership in this Association must be formally nominated and seconded, in an approved manner, by not less than three Active or Senior Members. Such nomination must have been in the hands of the Membership Committee for not less than four months, and the name of the candidate must have been distributed to the Association as a whole before final action may be taken on any new candidate for election to Active Membership. Provided the foregoing requirements have been met and the candidates have been approved by the Membership Committee and by the Council, their names shall be presented to the Association at a regularly convened annual meeting for final action. A three-fourths vote of those present and voting shall be required to elect. Any candidate for membership in this

Association who has failed of election for three successive years shall automatically cease to be a candidate and may not be renominated until after a lapse of three years.

Section 2. Active Membership shall be limited to six hundred. The candidate to be eligible must be a citizen of the United States of America or Canada, unless in unusual cases this citizenship requirement shall have been waived by Council. The candidate shall have achieved distinction in the thoracic field or shall have made a meritorious contribution to knowledge pertaining to thoracic disease or its surgical treatment.

Section 3. The Associate Members shall be appropriately phased out. The limited period of time for Associate Membership as required by Article III, Section 2 of the Constitution, shall be five years. During this limited period, an Associate Member, if properly qualified, may be elected to Active Membership. After the expiration of this limited period an Associate Member, if not yet qualified for Active Membership, must either be re-elected to an additional period of Associate Membership or dropped from the rolls of the Association.

Section 4. The number of Senior Members shall be unlimited. Active Members automatically advance to Senior Membership at the age of sixty years. In addition, starting with the 1971 Annual Meeting, a younger Active Member may be eligible for Senior Membership if incapacitated by disability, but for no other reason.

Section 5. Honorary Membership shall be reserved for such distinguished persons as may be deemed worthy of this honor by the Council with concurrence of the Association.

Section 6. The report of the Membership Committee shall be rendered at the annual Executive Session of the Association. Candidates shall be presented in groups in the following order: Candidates for Honorary Membership; retirement of Active Members to Senior Membership; Candidates for Active Membership, Associate Members for re-election; members dropped from the rolls of the Association.

Section 7. The Council shall recommend that any Active or Associate Member whose dues are in arrears for two years, or who has been absent, without sufficient excuse, from three consecutive annual meetings, shall have his membership terminated.

Section 8. Notwithstanding Section 7, any member of the Association over 60 years of age is excused from the attendance requirement and upon his specific request may likewise be excused from the payment of dues.

ARTICLE IV.

Section 1. The President of the Association shall perform all duties customarily pertaining to the office of President. He shall not only preside at all meetings of the Association, but also at all meetings of the Council. The President shall be elected from the Active or Senior Members of the Association.

Section 2. The Vice-President of the Association shall perform all duties customarily pertaining to the office of the Vice-President, not only as to the Association, but also as to the Council. The Vice-President shall be elected from the Active or Senior Members of the Association.

Section 3. The Secretary of the Association shall perform all duties customarily pertaining to the office of Secretary. He shall serve not only as Secretary of the Association but also as Secretary of the Council. The Secretary shall be elected from the Active or Senior Members of the Association. When deemed appropriate, an Active or Senior Member may be elected to serve as an understudy to the Secretary in anticipation of the latter's retirement from office.

Section 4. The Treasurer of the Association shall perform all duties pertaining to the office of Treasurer. He shall not only serve as Treasurer of the Association but shall also serve as custodian of the Endowment Fund. The Treasurer shall be elected from the Active or Senior Members of the Association.

Section 5. The Editor of the Association shall be the Editor of the official Journal and shall, ex officio, be the Chairman of the Editorial Board. The Editor may be elected from the Honorary, Active, or Senior Members of the Association.

Section 6. The Councilors of the Association shall hold office as specified in the Constitution. They shall be elected from the Active or Senior Members of the Association.

Section 7. In the event of a vacancy occurring in the office of President, the Council shall advance the Vice-President to the Presidency and appoint a new Vice-President under the Provisions of Article IV, Section 3, of the Constitution.

ARTICLE V.

Section 1. The Nominating Committee shall consist of three Active or Senior Members who are, by preference, also past Presidents of the Association and in attendance at the meeting. They shall be elected in accordance with the

provisions of Article V, Section 1, of the Constitution. The Council shall instruct the Committee as to the vacancies which are to be filled by election.

Section 2. The Membership Committee shall consist of seven Active or Senior Members appointed in accordance with the provisions of Article V, Section 2, of the Constitution. The Council may appoint not more than one of its own members to serve on this Committee. The duties of the Membership Committee are to investigate all candidates for membership in the Association and to report their findings as expeditiously as possible to the Council through the Secretary of the Association. This Committee is also charged with searching the literature of this and other countries to the end that proper candidates may be presented to the Association for consideration. Appointment to this Committee shall be for a period of one year, and not more than five of the members may be reappointed to succeed themselves. This Committee is also charged with maintaining a record of membership attendance and participation in the scientific programs and reporting to the affected members and to the Council any deviations from the requirement of Article II, Section 4, of these By-Laws.

Section 3. The Auditing Committee shall consist of three Active or Senior Members appointed in accordance with the provisions of Article V, Section 2, of the Constitution. None of these may be selected from the officers or councilors of the Association. Their duty shall be to audit the accounts of the Association each year and render their report to the Executive Session of the Association. Appointment to this Committee shall be made for a one-year term. Not more than two members may be reappointed to succeed themselves.

Section 4. The Program Committee shall consist of five members: The President of the Association, the Secretary of the Association, the Editor of the Association, and two members at large, one of whom shall be resident at or near the place of annual meeting. The duties of this Committee shall be to arrange, in conformity with instructions from the Council, the scientific program for the annual meeting.

Section 5. The Necrology Committee shall consist of one or more Active or Senior Members, and shall be appointed in accordance with the provisions of Article V, Section 2, of the Constitution. Appointments to this Committee shall be for a one-year term of office. Any or all members of this Committee may be reappointed to succeed themselves. The Council may, if it so desires, appoint one of its own members to serve as Chairman of this Committee. The duties of the Necrology Committee shall be to prepare suitable resolutions and memorials upon the deaths of all members of the Association and to report such deaths at every annual meeting.

Section 6. The Editorial Board shall be appointed by the Editor, subject only to the approval of the Council. The Editor shall be, ex officio, the chairman of this board and shall be privileged to appoint and indefinitely reappoint such members of the Association, regardless of class of membership, and such non-members of the Association as in his opinion may be best calculated to meet the editorial requirements of the Association.

Section 7. When Scientific or Research Committees are authorized by the Association, the Council shall appoint the Chairmen of these Committees, with power to organize their committees in any way best calculated to accomplish the desired object, subject only to the approval of the Council. Financial aid rendered to such Committees shall not exceed such annual or special appropriations as may be specifically voted for such purposes by the Association as a whole.

Section 8. The Evarts A. Graham Memorial Traveling Fellowship Committee shall consist of six members: The President, Secretary, and Treasurer of the Association and three members-at-large, one member being appointed by the President each year to serve a term of three years. The Chairman shall be the member-at-large serving his third year. The duties of the committee shall be to recommend Fellowship candidates to the Council, and to carry out all business pertaining to the Fellowship and the Fellows, past, present, and future.

Section 9. The Ethics Committee shall consist of five members appointed by the Council. No member shall serve more than four years. The Ethics Committee shall advise the Council concerning alleged breaches of ethics. Complaints regarding alleged breaches of ethics shall be received in writing by the Ethics Committee and shall be investigated by it. In addition, the Ethics Committee may investigate on its own initiative.

ARTICLE VI.

Section 1. Honorary Members of the Association are exempt from all initiation fees, dues, and assessments.

Section 2. Annual dues for Active Members shall be $50.00.

Section 3. Annual dues for Associate Members shall be S50.00.

Section 4. Senior Members are exempt from dues.

Section 5. Initiation fee for those elected directly to Active Membership shall be $15.00.

Section 6. If and when an Associate Member is elected to Active Membership, he shall pay an additional $5.00 initiation fee.

Section 7. Income from the Endowment Fund shall be expended as the Council directs.

Section 8. Associate and Active Members must subscribe to THE JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY to retain their membership status.

Section 9. Senior Members may retain their membership status without the payment of annual dues, and subscription to THE JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY is optional.

(NOTE. Bills for membership dues and for subscriptions to THE JOURNAL OF THORACIC AND CARDIOVASCULAR SURGERY will be mailed to members by the Treasurer after the annual meeting.)

ARTICLE VII.

Section 1. When the Association convenes for its annual meeting, it shall immediately go into executive session, but the business at this session shall be limited to:

1. Election of Nominating Committee.

2. Appointment of necessary committees.

3. Miscellaneous business of an urgent nature.

Section 2. The annual executive session of the Association shall be held at the opening of the afternoon session of the second day of the meeting. The order of business shall be:

1. Reading of the minutes of the preceding meetings of the Association and Council.

2. Report of the Treasurer for the last fiscal year.

3. Report of the Auditing Committee.

4. Report of the Treasurer for the current year to date.

5. Report of the Necrology Committee.

6. Report of the Program Committee.

7. Action on amendments to the Constitution and By-Laws.

8. Action of recommendations emanating from the Council.

9. Unfinished Business.

10. New Business.

11. Report of the Membership Committee.

12. Election of new members.

13. Report of the Nominating Committee.

14. Election of officers.

Section 3. There shall be an annual meeting of the Council.

ARTICLE VIII.

Section 1. These By-Laws shall in no wise be changed except by a two-thirds vote of the members present at the annual meeting or a properly convened meeting of the Association, and further provided that the proposed action or amendment shall have been moved and seconded by not less than three of the members in a properly convened annual or special meeting of the Association.

Section 2. These By-Laws may be suspended in whole or in part for a period of not more than twelve hours by a unanimous vote of those present at any regularly convened meeting of the Association.

CHARTER MEMBERS

Back to Annual Meeting Program

THE AMERICAN ASSOCIATION FOR THORACIC SURGERY
Charter Members
June 7, 1917

E. Wyllis Andrews
John Auer
Edward R. Baldwin
Walter M. Boothby
William Branower
Harlow Brooks
Lawrason Brown
Kenneth Bulkley
Alexis Carrel
Norman B. Carson
J. Frank Corbett
Armistead C. Crump
Charles N. Dowd
Kennon Dunham
Edmond Melchior Eberts
Max Einhorn
Herman Fischer
Albert H. Garvin
Nathan W. Green
John R. Hartwell
George J. Heuer
Chevalier Jackson
H. H. Janeway
James H. Kenyon
Adrian V. S. Lambert
Arthur A. Law
William Lerche
Howard Lilienthal
William H. Luckett
Morris Manges
Walton Martin
Rudolph Matas
E. S. McSweeney
Samuel J. Melter
Willy Meyer (Founder)
James Alexander Miller
Robert T. Miller
Fred J. Murphy
Leo S. Peterson
Eugene H. Pool
Walther I. Rathbun
Martin Rehling
B. Merrill Ricketts
Samuel Robinson
Charles I. Scudder
William H. Stewart
Franz Torek
Martin W. Ware
Abraham O. Wilensky
Sidney Yankauer

ANNUAL MEETING DATES

Back to Annual Meeting Program

Meetings of the American Association for Thoracic Surgery

1918-ChicagoPresident, Samuel J. Meltzer
1919-Atlantic City..... President, Willy Meyer
1920-New OrleansPresident, Willy Meyer
1921-Boston..... President, Rudolph Matas
1922-WashingtonPresident, Samuel Robinson
1923-Chicago..... President, Howard Lilienthal
1924-Rochester, Minn... President, Carl A. Hedblom
1925-WashingtonPresident, Nathan W. Green
1926-MontrealPresident, Edward W. Archibald
1927-New York.. President, Franz Torek
1928-WashingtonPresident, Evarts A. Graham
1929-St. LouisPresident, John L. Yates
1930-Philadelphia..... President, Wyman Whittemore
1931-San Francisco. President, Ethan Flagg Butler
1932-Ann Arbor..... President, Frederick T. Lord
1933-WashingtonPresident, George P. Muller

1934-BostonPresident, George J. Heuer
1935-New York... President, John Alexander
1936-Rochester, Minn... President, Carl Eggers
1937-Saranac Lake.... President, Leo Eloesser
1938-Atlanta. President, Stuart W. Harrington
1939-Los AngelesPresident, Harold Brunn
1940-ClevelandPresident, Adrian V. S. Lambert
1941-TorontoPresident, Fraser B. Gurd
1944-Chicago. President, Frank S. Dolley
1946-DetroitPresident, Claude S. Beck
1947-St. Louis.... President, I. A. Bigger
1948-Quebec. President, Alton Ochsner
1949-New OrleansPresident, Edward D. Churchill
1950-DenverPresident, Edward J. O'Brien
1951-Atlantic City..... President, Alfred Blalock
1952-Dallas. President, Frank B. Berry
1953-San FranciscoPresident, Robert M. Janes
1954-Montreal.. President, Emile Holman
1955-Atlantic City..... President, Edward S. Welles
1956-Miami Beach. President, Richard H. Meade
1957-Chicago..... President, Cameron Haight
1958-Boston.. President, Brian Blades
1959-Los Angeles..... President, Michael E. De Bakey
1960-Miami Beach. President, William E. Adams
1961-Philadelphia... President, John H. Gibbon, Jr.
1962-St. Louis..... President, Richard H. Sweet (Deceased 1-11-62)
..... President, O. Theron Clagett
1963-Houston. President, Julian Johnson
1964-MontrealPresident, Robert E. Gross
1965-New OrleansPresident, John C. Jones
1966-Vancouver, B. C.President, Herbert C. Maier
1967-New York..... President, Frederick G. Kergin
1968-PittsburghPresident, Paul C. Samson
1969-San FranciscoPresident, Edward M. Kent
1970-Washington, D. C. President, Hiram T. Langston
1971-Atlanta..... President, Thomas H. Burford
1974-Las VegasPresident, Lyman A. Brewer