



RELIABILITY GROUP NEWSLETTER

OCTOBER 1973 Vol. XVIII Issue 3

Editor: Paul Gottfried

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Editor's Note

Without taking a position, we call your attention to the referendum question on the current IEEE ballot. (See "Your Referendum Vote is Important" in this issue.)

"Material for the January issue must be in the Editor's hands by November 21. Chapter material should be sent directly to the Associate Editor."

Chapter news

Chapter chairmen

Baltimore	Mr. Thomas T. Jackson 601 Bay Hills Drive Arnold, Md. 21012	New Jersey Coast	Mr. Weldon V. Lane 57 Throckmorton Avenue W. Long Branch, N.J. 07764
Binghamton	Mr. Joseph J. Rexford 20 Merrill Street Binghamton, N.Y. 13905	New York - Long Island	Dr. Martin L. Shooman 12 Broadfield Place Glen Cove, N.Y. 11542
Boston	Mr. Donald V. Simpson 19 Washington Avenue Stoneham, Mass. 02180	North Jersey	Mr. Everett L. Labagh 409 Colonial Road Ridgewood, N.J. 07450
Canaveral/Daytona	Mr. Jack R. Lykins 285 Carissa Drive Satellite Beach, Fla. 32935	Philadelphia	Mr. Irving Hyams 134 East Cheltenham Avenue Philadelphia, Penna. 19120
Chicago	Mr. Charles W. N. Thompson 240 Randolph Street Chicago, Ill. 60022	San Francisco	Mr. P. J. Guillot 1029 Tulipan Drive San Jose, Calif. 95129
Cleveland	Mr. Vincent R. Lalli 21000 Brookpark Road MS 54-1 Cleveland, Ohio 44135	Twin Cities	Mr. Richard V. Rappel 2748-16-A Street, N.W. New Brighton, Minn. 55112
Connecticut	Mr. Benjamin M. Tashjian 11 Rondure Road Granby, Conn. 06035	Washington	Mr. Peter J. Mulligan 2500 N. VanDorn Street Alexandria, Va. 22302
Florida West Coast	Mr. Robert P. Dalton 2170 College Drive Clearwater, Fla. 33516		
Los Angeles	Mr. Bernard J. DiNardo 1048 E. Palmdale Orange, Calif. 92665		
Mohawk Valley	Mr. Anthony J. Feduccia RD 2 Box 207B Frankfort, N.Y. 13340		

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9251 Three Oaks Drive
Silver Spring, Maryland 20901

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Westinghouse Electric Corporation
Defense and Electronic Systems Center
Box 746, M/S 138
Baltimore, Maryland 21203

Baltimore

The first meeting of the 1973-74 season will be held Monday, September 17, 1973 at the Beltway Motel. The speaker will be Karl Dell, Program Manager, Amecom Division, Litton Systems, Inc. and he will discuss "New Horizons in Quality".

Boston

A kickoff meeting of Chapter officers and committee chairmen was held to develop, discuss and establish plans and responsibilities for the 1973-74 season. A tentative schedule of six chapter meetings, capped by the 12th Annual All Day Spring Reliability Seminar to be held in April 1974, was developed.

The following officers have been elected to serve during the 1973-74 term:

Chairman

Donald V. Simpson
RCA Corporation
P. O. Box 588, MS #6
Burlington, MA 01801

Vice Chairman

Norman A. Martel
RCA Corporation
P. O. Box 588, MS #6
Burlington, MA 01801

Secretary

Eugene R. Carrubba
GTE-Sylvania
Dept. 522
77 "A" Street
Needham Heights, MA 02194

Treasurer

Amy C. Spear
RCA Corporation
P. O. Box 588, MS #6
Burlington, MA 01801

Connecticut

The first meeting of the 1973-74 season will be held October 16, 1973 at the Millstone Point Nuclear Power Station, Waterford, Connecticut. The subject will be "Reliability at Nuclear Power Stations".

Los Angeles

The Los Angeles Chapter had a busy schedule for 1972-73:

October 18

"Mil-M-38510", J. E. Feldt and T. Bush,
National Semiconductor Corporation

November 15

"Reliability Demonstration Testing", C. M.
Ryerson, Hughes Aircraft

January 17

"Medical Equipment Failure Models and
Safety Hazards", P. Delangis, President,
Artificial Kidney Center

February 13

"Realistic Approach to Failure Analysis
Techniques", P. Eisenberg, Litton Systems

March 14

"Reliability and System Safety Interrelation-
ship", B. Moriarity, TRW Systems Group

April 18

"DOD Standardization and Jan TX Semiconductor Reliability", B. J. DiNardo and W. Dawe, TRW Systems Group

The following officers have been elected to serve during the 1973-74 term:

Chairman

B. J. DiNardo
TRW Systems Group
1 Space Park R4/1174
Redondo Beach, CA 90278

Vice Chairman

Frank C. Friedt
Hughes Aircraft Company
Culver City, CA 92666

Secretary/Treasurer

Kenneth L. Peterson
Douglas Aircraft
3855 Lakewood Boulevard
Long Beach, CA

Philadelphia

The first meeting of the 1973-74 season is scheduled for September 27, 1973 at the Presidential Apts. Mr. W. H. MacWilliams, Head, Data Processing, System Control Dept., Bell Laboratories will discuss "Reliability of Large Real-Time Control Software Systems". The next meeting is scheduled for October 24, 1973. Mr. Frank A. Eble, RCA Corporation will discuss "Maintenance Strategies for Ambiguous Faults".

Twin Cities

The first meeting of the 1973-74 season is scheduled for November 28, 1973 at the CDC Tower. The speaker will be George Haferkorn who will discuss "Reliability and Part Criticality".

Washington

The first meeting of the 1973-74 season will be held at Vitro Laboratories in October. The speaker will be Dr. Carl Harris of The George Washington University. He will discuss "Failure Rate Prediction and Wearout Detection".

Your REFERENDUM VOTE

is Important

Your IEEE ballot this year carries a referendum question proposing the establishment of an affiliated corporation to be composed of all the IEEE Groups and Societies.

Short of recounting the history of events leading up to the referendum and the detailed arguments on both sides of the issue, it is impossible to do justice to the question. In brief, the proponents -- led by the Governing Board of the Computer Society -- argue that an IEEE technical (c) (3) organization is needed to facilitate Group and Society emphasis on technical matters, while IEEE as a whole pursues "professional" matters as directed by last year's constitutional amendment. The opponents -- led by the Board of Directors of IEEE -- argue that such separation is unnecessary and risks splintering of IEEE.

Each Group and Society is authorized to take a position on either side of the question or to remain neutral. Timing has precluded G-R from considering a stand. The decision rests in the membership in any event, and you are urged to consider the question and vote.

Employment Notices

The Newsletter accepts both "Help Wanted" and Position Wanted" Notices on a no-charge basis, subject to the following rules:

- Notices will appear in two successive issues unless cancellation notice is received before editorial deadlines.
- Text for each notice will be limited to ten lines plus identification, with a maximum of 45 characters and spaces per line.
- Notices may be open or blind, but blind "Help Wanted" notices should identify the type of business and the general geographic location of the vacancy.
- Submittals of "Position Wanted" notices should include IEEE membership number.
- "Help Wanted" notices must fall in the "Equal Opportunity - M&F" category. Agreement to this requirement will be considered to be implied by the submittal of the notice and need not appear in the text.

POSITION WANTED

18 yrs exper. in Product Assurance activities incl. program mgmt., Q.A., Q.C., failure reporting & reliability programs pertaining to component parts including IC's for commercial and military equipment. Coordinated & controlled quality of purchased items for mass production of communications equipment & effected yield improvements in the end products through process analyses and implementation of corrective measures. BSEE, MBA.

Reply to Box 3, c/o Editor
Paul Gottfried
9251 Three Oaks Drive
Silver Spring, Md. 20901

HELP WANTED

Electronics reliability design assurance engineer, at least 3 years experience in reliability or maintainability on Navy electronic systems, capable of interfacing with Navy Project Engineers. BSEE required. Send resume to:

Columbia Research Corporation
P. O. Box 485
Gaithersburg, Maryland 20760
Attention: Mr. E. McMahon

Engineers - Many openings in the following areas: Reliability; Electronic Design and Design Analysis; Avionics; Aircraft Armament Systems; Digital Multiplexing; System Safety; Quality Assurance Review of Engineering Documentation; ILS. BS Degree or equivalent required. Send resume to:

Systems Consultants Incorporated
543 Graaf Street
Ridgecrest, California 93555

RELIABILITY GROUP PARTICIPATING IN TECHNOLOGICAL FORECASTING AND ASSESSMENT

CALL FOR PAPERS RELIABILITY PHYSICS Symposium

Papers describing original, unpublished work are solicited for the 1974 IEEE International Reliability Physics Symposium. The Symposium, co-sponsored by G-R and G-ED, will be held at the MGM Grand Hotel, Las Vegas, Nevada, April 2-4.

Areas of interest include Failure Analysis Techniques, Successful Applications of Failure Analysis, Failure Modes & Mechanisms, Reliability Prediction and Improvement, Process Control Related to Reliability, and Component Design Related to Reliability.

Notification of intent to submit an abstract should be sent immediately to

I. A. Lesk, Technical Program Chairman
1974 Reliability Physics Symposium
Motorola Inc.
5005 E. McDowell Rd., MS A112
Phoenix, Arizona 85008

Abstracts are due November 13. Prospective authors must submit both a 50-word descriptive abstract and a 300-500 word summary appropriate to a 20-minute paper clearing stating: (1) the purpose of the work, (2) how it advances the knowledge of reliability physics, and (3) the results of the investigation. The abstract should be typed on a separate sheet and include the title of the talk, author(s) and affiliation, complete return address, and telephone number. Summaries must be submitted in single-side, double-spaced typewritten form suitable for immediate reproduction and review purposes. The title, author's name, affiliation, complete return address and telephone number should appear on the first page, and the author's name and paper title on each subsequent page.

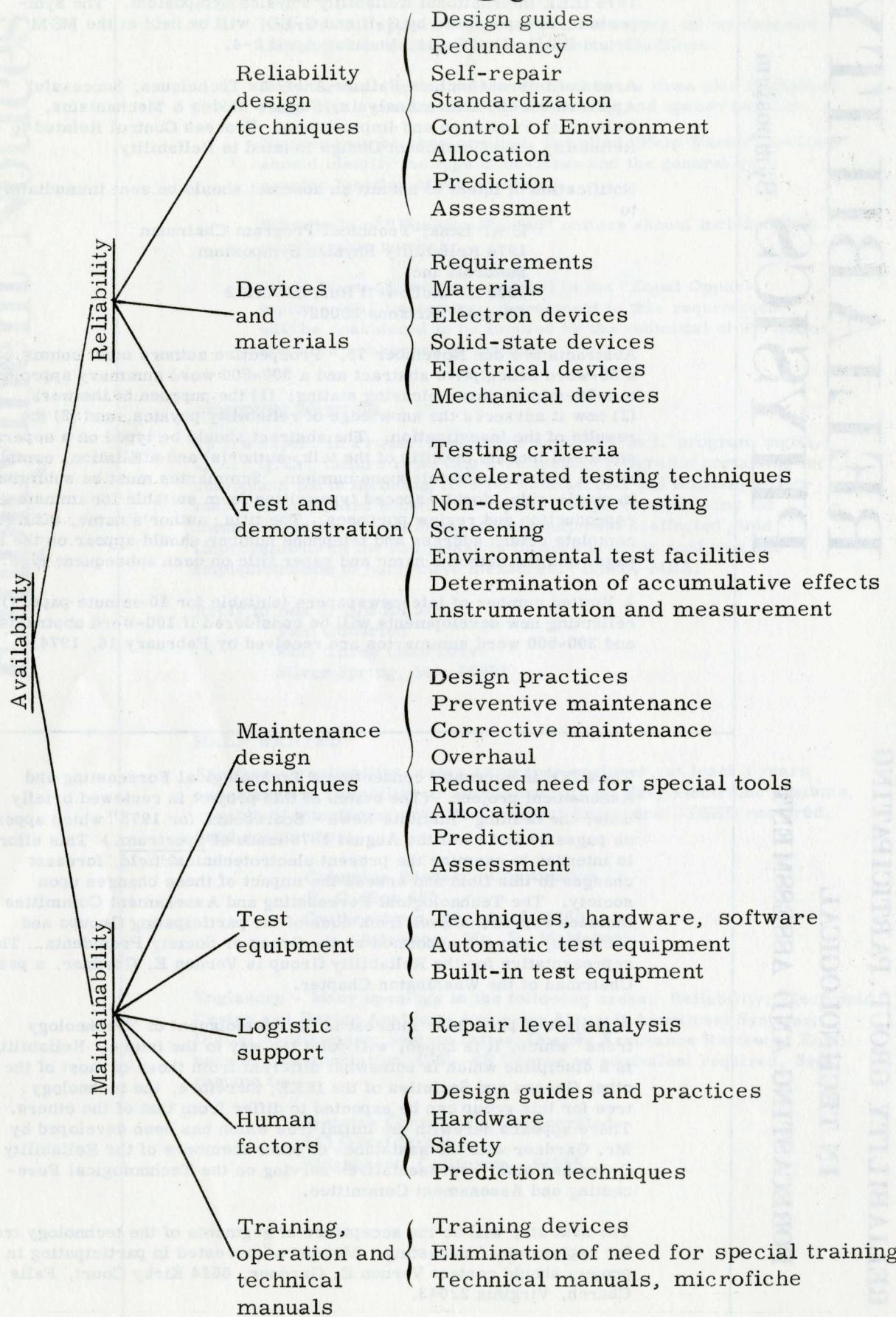
A limited number of late-newspapers (suitable for 10-minute papers) reflecting new developments will be considered if 100-word abstracts and 300-500 word summaries are received by February 16, 1974.

The IEEE is currently conducting a Technological Forecasting and Assessment project. (The status of this project is reviewed briefly under the heading "Institute News - Scoreboard for 1973" which appears on pages 57 and 58 of the August 1973 issue of *Spectrum*.) This effort is intended to examine the present electrotechnical field, forecast changes in this field and assess the impact of these changes upon society. The Technological Forecasting and Assessment Committee includes representatives from each of the participating Groups and Societies, who are appointed by the Group or Society Presidents. The representative for the Reliability Group is Vernon E. Gardner, a past Chairman of the Washington Chapter.

A project of particular interest is the development of "Technology trees" which, it is hoped, will point the way to the future. Reliability is a discipline which is somewhat different from those of most of the other Groups and Societies of the IEEE; therefore, the technology tree for this group can be expected to differ from that of the others. There appears herewith the initial tree which has been developed by Mr. Gardner with the assistance of other members of the Reliability Group and other representatives serving on the Technological Forecasting and Assessment Committee.

The next step will be the acceptance of segments of the technology tree for exploratory forecasting. Members interested in participating in the project should contact Vernon E. Gardner, 6624 Kirby Court, Falls Church, Virginia 22043.

Technology Tree



conferences

- | | |
|-------------------------|---|
| November 12-14 | 44th National ORSA Meeting, Town & Country Hotel, San Diego, California |
| November 13-16 | Third Symposium on Reliability in Electronics (Scientific Society for Telecommunication), Hungarian Academy of Sciences, Budapest, Hungary |
| <u>1974</u> | |
| January 27 - February 1 | 1974 IEEE Power Engineering Society Winter Meeting, Statler Hilton Hotel, New York City |
| January 29-31 | 1974 Annual Reliability and Maintainability Symposium (G-R, ASQC, ASME, AIE, ASM, AIAA, IES), Biltmore Hotel, Los Angeles, California |
| February 13-15 | 1974 IEEE International Solid-State Circuits Conference (Solid-State Circuits Council, Philadelphia Section, University of Pennsylvania), Philadelphia Marriott Motor Hotel |
| April 1-5 | 1974 IEEE Power Engineering Society Underground Transmission and Distribution Conference, Convention Center, Dallas, Texas |
| April 2-4 | 1974 International Reliability Physics Symposium (G-R, G-ED), MGM Grand Hotel, Las Vegas, Nevada |
| April 3-4 | 1974 ASME/IEEE Joint Railroad Conference, Pittsburgh, Pennsylvania |
| April 22-24 | 1974 IEEE International Symposium on Circuits and Systems (S-CS), Sir Francis Drake Hotel, San Francisco, California |
| April 22-26 | EUROCON 74 (European Conference on Electrotechnics) (Region 8 et al.), R.A.I. Congress Centre, Amsterdam, The Netherlands |
| May 11 | First Canadian Reliability Symposium (Ottawa Chapter of the Society of Reliability Engineers), Carleton University, Ottawa, Ontario |
| July 1-5 | 1974 Conference on Precision Electromagnetic Measurements (The Royal Society and IEE with URSI, IERE et al.), London, England |

SOFTWARE RELIABILITY PROCEEDINGS AVAILABLE

Copies of the proceedings of the IEEE Symposium on Computer Software Reliability (April 30-May 2, 1973) are available free to G-R members as long as the supply (200) lasts. Only one copy per member, please. Address your request to

D. I. Troxel
RCA
Bldg. 13-5-2
Camden, N.J. 08102

Newsletter policy with respect to short-course announcements, as established by the AdCom, is to provide publication for information only. No endorsement is implied, and no check on course content or instructor qualifications has been accomplished.

University of Arizona

11th Annual Reliability Engineering and Management Institute: November 11-20. Eight days, \$500; various subsets at reduced cost. Contact: Gen. B. H. Pochyla, Director of Conferences and Institutes, Division of Continuing Education, The University of Arizona, Tucson, Arizona 85721

Detroit Research Institute

Economics of Reliability: Week of March 18, 1974. One week?, \$345. Contact: Dr. Arvid W. Jacobson, Detroit Research Institute, 21900 Greenfield Road, Oak Park, Michigan 48237

The George Washington University

Effective Quality Management: November 14-16. Three days, \$230. Contact: Continuing Engineering Education Program, The George Washington University, Washington, D. C. 20006

Standards and Calibration Laboratories: December 3-7. (Co-sponsored by National Bureau of Standards). Five days, \$325.

Mathematical Models for the Environmental Sciences: December 10-14. Five days, \$340.

Statistical Methods in Reliability -- Application of Recent Developments to Reliability Problems: December 10-14. Five days, \$340.

University of Wisconsin

Nondestructive Testing: December 4-5. Two days, \$100. Contact: University of Wisconsin-Extension, Department of Engineering, 432 North Lake Street, Madison, Wisconsin 53706

publications

From IEEE:

Papers from INTERCON-74, packaged by sessions at \$1.00-2.50 per set or by general subject matter in eight volumes at \$4.00-\$8.00-\$12.00.

From the National Bureau of Standards, available through the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402:

Methods of Measurement for Semiconductor Materials, Process Control, and Devices (Quarterly Report October 1-December 31, 1972), NBS Tech Note 773, SD Catalog No. C13.46:773, 56 pages, \$0.80.

Recorded Magnetic Tape for Information Interchange (800 CPI, NPZI), FIPS Publication 3-1, June 30, 1973, SD Catalog No. C13.52:3/1, 4 pages, \$0.20.

Standard Reference Materials - 1973 Catalog, NBS Special Publication 260, April, 1973, SD Catalog No. C13.10:260-1973 cat, 96 pages, \$1.25.

Frequency Stability Specification and Measurement: High Frequency and Microwave Signals, NBS Tech Note 632, SD Catalog No. C13.46:632, January, 1973, 70 pages, \$0.65.

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TOMY VILLART
SHREVEPORT
J T MILLER
SOUTH PLAINS
P B NEAL
DALLAS
J L ALLEN SWORTH
GENE J BARTSCH
CARL J BENNING
W R M BURKHATER
CHARLES A BUTLER
F E CHEW
DAVID CLIFTON
J L FIKE
WILSON M FORTNER
ROBERT C FRINK
STCCHARN R HASTINGS
J D E HASTY
D R HOFFMAN
ROBERT J JONES
RICHARD G KARM
J K KELLING
J W LANGSTON
J P LESLIE
WILLIAM J NTLES
JERRY L CBENDOUR
W C PITTS JR
P R SANDERS
J E SANDRIDGE
H E SCHANTZ
C M SCHWALM
CHARLES R THOMAS
R M WATSON
RAYMOND E WILSON
SAN FRANCISCO
W R ABOTT
J R ALLGATER
J K AMUNDSON
ROBERT L ANDERSEN
M H BAER
ARTHUR E RAYCE
R N BEAN
R C BECKLUND
WILLIAM J BEECHER
RA BLOCKINGER
BARRY R BORGESSON
G BOWERS
HOWARD H BRAUER
JAMES T BROTHERS
MICHAEL BUCHER
BERTRAM M BURRISS
H R CALDWELL
FRANK C CAMERON
F CASSETTARI
H M CHANKIN
KING S CHAW
WILLIAM CHOW
GEORGE O COMPTON
A D CONNER
RICHARD C CORNWELL
W P CRAINE
E S DEAN JR
WILLIAM S DRUMMOND
J A ECHEVARIA
A P EGGERMAN
T H FLAM
DOUGLAS G FAIRBAIRN
W L FINCH
R A FOLSOM JR
L G FREDERICK
WARREN GELLER
P J GUILLOT
FREDERICK M HALF
HANS W HANSEN JR
BRUCE J HARRIS
DEXTER T HATRE
D R HOFFMAN
R M HUBBARD
DONALD J HUISMAN
DOROTHY A HUTSON
T M JACOBS
JULIANNE J JEDEKA
P J KAPILOFF
P H GREER
M C HALLICK
THOMAS H HOWELL
M C JENSEN
R L JONES
H P KENYON JR
D G MARK
V J MINKEL
DANIEL F NOBLE
LOUIS PLOTKIN
R E SAMUELSON
FRANK A SCHNEIDER
W L STEINMANN
ROBERT M WARHOLA
FOOTHILL
RICHARD L CRAMER
JOHN B CYRACHTS
D M GOODMAN
J F GRAY
B W GRIER
G W HENNESSY
DENNIS D HUFFMAN
FRED KROLL
CHARLES K CHEN
R F CLINE
H S DODGE
C A KROHN
VIRGIL L LOVITT
DONALD G MAC DOUGALL
D E NISSEN
M L SANDELL
DONALD S TOOMB
H MEYER
RALPH E WEST
J T WILSON
MET. LOS ANGELES
GERALD W BOTTRELL
EUGENE W COLEMAN
IRVING DLUGATCH
DAVID K FUNG
HOMER H GRANT JR
G HENSEL
L K LEE
JOHN R MALSON
SAI T SUNG
G W YIM
ORANGE COUNTY
M F ADAM
K W ANDERSON
JOHN B COZANIC
JOHN E COOLIDGE
C F DEINGINGER
STANLEY B DEMES
B J DI NARDO
JOHN R DONAN
DAVID W FLY
A EPP JR
DONALD L EWING
D C FLEMING
J G FOUNTAIN
F C FREIDT
E A POLGAR
KENNETH A REYNOLDS
NORMAN F SCHNEIDERWIND
RICHARD J SEGERSTROM
MARVIN D SHEPHERD
MEGHNA SHYAM
V SIEGRIED
LOREN C SKINNER 2ND
W T STARR
J J TAYLOR
LESLIE F TAYLOR
DORLIN D TRAPP
ALAN M USAS
V J VAN VELZER
F R VAN WAGNER
B T IWATA
D R JANNING
FRED KORTRIGHT
ATLURI B KUMAR
FRANCIS P MATUR
J J MC GARRY JR
KEYHAN MCLAVI
J H MUTCHER
RAYMOND J NEVENNER JR
C G RIEPL
J H SCHMIDKLEY
W B SHELLEY
SANTA BARBARA
ROBERT A ANDERSON
DAVID A HILL
GEORGE J HUDA
ROBERT J MC MILLIN
WILLIAM OLIVERI
CLAUDIA H SCOTT
C N STOLL
WAYNE R SUTTON
SANTA MONICA BAY
ROBERT ARANY
A AVIZIENIS
F BIEN
C R DERNHAM
I DOSHAY
T H GINNAS
SANDER O FALAKI
JACK E FORT
ROBERT H GACA
D W GADE
A L GICHTIN
E J GOZSI
BERNARD C KINZEL
G E LAURE
ROBERT G MCINTURFF
GEORGE V NOLDE
ALLAN D PACKLER
R A RODRIGUEZ
HERMAN D RUE
ALBERT H SAMUELS
G S SZEKELY
R C TERZIAN
MARY D THOMPSON
H B WATERMAN
SOUTH BAY HARBOR
FRED G ALBRIGHT
ROBERT S BABIN
RICHARD A BRUCE
R J CARY JR
STEPHEN S MAXNER
B OVNELL
JAMES H PARKER
DAVID A REID
D K RITCHIE
OJARS SILS
CHANAN SINGH
S V SOANES

Region Eight

R R DYE
GERALD H FULLER
JOSEPH C GAUSEPOHL
W D GEISERT
W F HATHAWAY
P L STROHSCHAFF
ROBERT F SUCLIFFE
NORTHERN CANADA
JOSEPH M GREEN
W E HATHAWAY
P L STROHSCHAFF
MOHINDER S GROVER
H KALDOR
SASKATCHEWAN
R BILLINTON
S S SHOHARA
B N THAHL
HAROLD M WEIL
H K WEISS
K L WONG
C J YOUNG
VANCOUVER
R BART HOLMEWE
J R CLAYDON
P W WADINGTON
VICTORIA
DAVID S CAMPBELL
WINNIPEG
ERIC J BELTON
A A BURROW
T J HARPER
M P MUSICK
WESTERN CANADA COUNCIL
Montreal
J L BOULET
D J CLARK
P DEMERS
J E DIND
R A DINGWALL
ROBERT P GAGNON
R F GENTNER
V E ISAAC
AUGUSTINE P KALANZI
J HLEGERE
LAURENT MARQUIS
J MAST ROCOLA
F MOLLER
S E PINNELL
D R RINGOLD
L G ROBERTSON
R W REED
D W WEYTHE
YING CHIN YEH
NEW BRUNSWICK
J ENSING
EMMETT J BURGESS
OTTAWA
J E ARSENAULT
DAVID D DAWSON
JOHN B DE MERCADO
ROBERT W DUTHIE
DANIEL H GARRIGAN
G GLINSKI
T DKIANG
H V PUNLEIDER
ANDREW J SPOLSKY
RUDY S VOYTEK
R B WALLACE
ANTONIN WILD
QUEBEC
A L LORTIE
W E SWITZER
DENMARK
OLE T ANDERSEN
PETER W BECKER
KNUD HOLST
FINN JENSEN
P G JENSEN
SVEND E JENSEN
D S NAG
B AAGAARD NIELSEN
OTTO RING
EGYPT
MAHMOUD A SALEH
FINLAND
ESKO H HEIKKILA
M JOKINIEMI
KARI I SIREN
FRANCE
JACQUES A AMANN
F J RALN
JEANNE C BARTOLI
J ENDRENYI
JOAN A HALL
ALFRED M HASE
F J HEATH
W HRYHORIJIW
J T KOSKI
J E LOCKYER
J D MARTIN
STEPHEN S MAXNER
J L DUPREZ
HERBERT H ERNEYI
RENE B BOIRON
M CHAUVERIE
LEON H CONSTANTIN
MICHEL P CORDELLE
CHARLES A DAVID
JACQUES J DE BARBEYRAC
M DELATTRE
J L DUPREZ
HERBERT H ERNEYI
LOUIS J FECHANT
ANDRE R FROLIGER
HERVE J GALLAIRE
P GANDIN
J F GASCHI
PIERRE GENEKIN
JEAN-MARIE G GRANGE
P A GRIEVET
WESTERN CANADA COUNCIL
NORTHERN CANADA
JOSEPH M GREEN
W E HATHAWAY
P L STROHSCHAFF
ROBERT F SUCLIFFE
SASKATCHEWAN
R BILLINTON
MOHINDER S GROVER
H KALDOR
SOUTHERN ALBERTA
WHO-KFF CHUNG
VANCOUVER
R BART HOLMEWE
J R CLAYDON
P W WADINGTON
VICTORIA
DAVID S CAMPBELL
WINNIPEG
ERIC J BELTON
A A BURROW
T J HARPER
M P MUSICK

Continued...

Continued...

FRANCE
 B P JOLY
 MICHELE KARSKY
 WM MAZEL
 DANIEL A MOREAU
 P P NAMIAN
 A DUDARD
 J C PELPEL
 M J H PONTE
 MAURICE QUIOT
 ANDRE RAULT
 PIERRE RENARD
 J H ROBIEUX
 JFAN J SAMUELI
 A SARAZIN
 JEAN A SUAU
 PIERRE J TOURNOIS
 F P VALENTIN

GERMANY (WEST)
 ALFRED BECKER
 C W BUSCH
 GOTTFRIED FARWER
 HELMUT GEISSLER
 J HENRICI
 BERND K KNOERR
 W H SCHOENFELD
 HEINZ SCHWARZER
 HANS STRACK
 GÜLBRIGHT
 GUNTER G WEBER

GREECE
 JOHN HATZIS
 IRAN
 M Y AFSHAR
 YADOLLAH PARVIZI

ISRAEL
 D AVIVI
 YAKOV BEERY
 DOV BI'RAN
 URI BLOCH
 DAVID BRONSTEIN
 E CASPI
 MELVIN H COHEN
 M DISHON
 U GALIL
 J GILAT
 ELIEZER J LEVY
 F MARIUS
 GURION MELTZER
 RUBEN OREN
 S SAMUEL
 MEYER R SHULMAN
 D SPIRA
 D TABAK
 CLARA WIDRO
 JOSEPH ZADICARIO

MIDDLE & SOUTH ITALY
 MARIO BRUNELLI
 ILIO CAPPETTI
 GIUSEPPE CIRILLO
 CATELLO D'AURIA
 ELIO A FAGNONI
 G GOMMELLINI
 T LEARDINI
 UMBERTO MENGALI
 DINO OLIVETTI
 U PIZZARELLI
 C ROMAGNOLI
 GIORGIO STRINI
 U TIRERICO
 A ZANINI

NORTH ITALY
 ETTORE ACCENTI
 LUIGI BONAVOGLIA
 LINO BCFANTINI
 GIANCARLO BONGHI
 A CIARAMELLA
 G COTTAFAVA
 GIORGIO DE LOTTO
 A DEROSSI
 G DE VITO
 C EGIDI
 G MORRA
 G PERONA
 PAOLO L PERONI
 G QUAZZA
 LUIGI RIVARA
 PSCHIAFFINO
 GIAN F TOMMAZZOLLI
 GUIDO VANNUCCHI
 ANTONIO VANZI
 GUIDO P VULPETTI
 C ZANELLI

NORWAY
 DAG T GJESSING
 PER J JORGENSEN
 ERIK MACK
 K R MEISINGSET
 K E SØRYYE
 O J TVEIT

POLAND
 TADEUSZ CIBOROWSKI

SPAIN
 RICARDO ALVAREZ-ISASI
 JUAN T ASTIN
 JORDI G AYZA
 G G CASTRO
 ANTONI CZECHOWSKI

J A DE ARTIGAS SANZ
 JUAN A DEL GIORGIO
 NARCISO GARCIA-REDONDO
 VALENTIN M PARRA
 JOSE I PASTOR
 PEDRO SANZ
 RICARDO VALLE-SANCHEZ

SWEDEN
 L AROS ENIUS
 SVEN CHRISTENSSON
 A V EHNR ERG
 STELLAN EKBERG
 A L ELFVING
 S G GERTZELL
 S G GRANLER

LENNART GUSTAFSSON
 PETTER HESSEN
 G JANCKE
 L KARL STEDT
 MAGNUS KOCH
 G LINDBERG
 L E LOFGREN
 G A MARKESJO
 B N NILSSON
 LARS F NOLIN
 JAN-PETER OCKLIND
 A J OLSSON
 D PERERS
 T P PERSSON
 O RAMS KOLD
 S S JOGREN
 P G SOLDERS
 H B THOREN

PAUL VAN GEMST
 LARS G VIRSBERG
 G WEDELL
 AKE V WERNERSSON
 GUNNAR WIDEROTH

SWITZERLAND

A E BACHMANN
 JEAN C BEUCHAT
 A BIROLINI
 F EGGLI MANN JR
 H A ELSNER
 HEINRICH H ERNI
 M P FORER
 HEINZ H FREY
 JOHANNES A GUTMANN
 RONALD J HUG
 STEFAN M KUDELSKI
 GUIDO J LANG
 M A MEYER
 ROLAND MEYLAN
 MAX J MILZ
 R F OXLEY
 I SCHERRER
 RAINER SCHICK
 M STRUTT
 H E THIEMANN
 WILLEM G VAN DER TOUW
 D H VAN ZUYLEN
 R P WELLINGER
 A J ZEIER

UNITED KINGDOM &
 REPUBLIC OF IRELAND

D ASHBY
 EDWARD S ATKIN
 RONALD A BARRS
 ROGER G BENNETTS
 P CARMICHAEL
 N J CLARK
 ANTHONY L CONSALVI
 C S DEN BRINKER
 G W A DUMMER
 ROGER FROW
 I G GILROY
 A R HALFORD
 R JENSEN
 ERIC W KIRK
 IAN KIRKPATRICK
 NOEL J MACGREGOR
 MAURICE H MC FADDEN
 M A MILLWARD
 R H MURPHY
 J R POLLARD
 H G K SCHOTTEN
 PATRICIA L SHOVE
 ANTHONY J B SWAIN
 RICHARD J VOWLES
 Z F VOYNER
 J WELSH
 M F WHITE
 J E WILKS
 K F WILLIAMS
 A G WILSON

YUGOSLAV

FRANK KRANJC
 J VIRANT

NO ESTABLISHED SECTION

MOSA N ALI
 GYORGY ALMASSY
 VACLAV CHLOUBA
 F W GUNDLACH
 VACLAV POLIVKA
 W W RIEDLER
 SAIYYAD M SALEEM MOINI
 L SZANTO

Region Nine

ARGENTINA
 FRANCO CAGNASSO
 EDUARDO A LAPADULA
 GUILLERMO H MAROTTA

CENTRAL AMERICA
 CHARLES V LEWIS
 COLOMBIA
 FERNANDO REY-URIBE

MEXICO
 JORGE ANGELES-ALVAREZ
 J A ESTEVA
 CARLOS P GUTIERREZ
 LORENZO G JULIEN
 MARIO T LANG
 CARLOS NUNEZ A
 GUILLERMO RIVERA
 OSCAR L ROCIN
 LARS M RUNBECK

PERU
 JOSE S GAMERO
 JDIME J GRANDEZ-GOMEZ
 JOSE F LOAYZA
 J A PRADO
 OSCAR M RENTEROS

PUERTO RICO &
 VIRGIN ISLANDS
 GERALD J HADDOCK

VENEZUELAN

LUIS E AGUILAR
 CARLOS E ALVAREZ B
 MANUEL FLINT-HALPERN
 PAUL J SMYTH

NO ESTABLISHED SECTION
 R RAMPERSAD

BRAZIL COUNCIL

RIO DE JANEIRO
 NICHOLAS BROOKING
 RAIJL COLCHER
 M F LIPPINCOTT
 SILVA I MOURLHE
 JACY F PINTO

SAO PAULO
 MIGUEL J ABDALLA
 A COHEN
 F DE MENDONCA
 JOSE KOVACS
 FUMITAKA NISHIMURA
 PEDRO SAVADOVSKY
 F L SHERMAN
 ANGELO VIAN

Region Ten

AUSTRALIAN

ROGER L BOLDEN
 LOUIS W DAVIES
 R J C DAVIES
 ROGER F EVANS
 ANGUS F FOWLER
 ROSS A GAWLER
 HSUEN-REN HWA
 F P LEVI
 R J MORGAN
 SFLWYN V RUSSELL

HONG KONG
 K W SCHOLZ
 CHING LAI SHENG

INDIA
 C D GANDHI
 MANGHO J KIRPALANI
 K B MISRA
 G P NAGARKAR
 V S NAZTR-AHMED
 JAY D SHARMA

NEW ZEALAND
 L F BENNETT

TOKYO
 EIZO ABE
 OSAMU ABE
 KENICHI AIHARA
 MORIO AKIYAMA
 TADAHIKO AKIYAMA
 KASABURO AMAKASU
 FUMIO ANDOW
 SABURE AOT
 YOSHIMAS A AOKI
 KYOSHIGE ECHIKAWA
 YOSHIO FUJINO
 MASAO FUKATA
 MITSUO GEN
 KOOSUKE HARADA
 KIYOHITO HASHIGUCHI
 KAZUMASA HIRAI
 HARUO HIROSE
 KOJI HIROSE
 KOICHI HOSOKAWA
 MASARU IBUKA
 MASAO IDE
 YOSHIO THARA
 KUNIZO IWAMOTO
 SHINGO IWASE
 NOBORU IZIKE
 IKUZO IZUMI
 SADAHIKO KATO
 TADASU KAWANO
 MATSUNAGA KINASE
 SHUNKICHI KISAKA
 DAIJIRO KOBAYASHI
 TETSUJI KOBAYASHI
 SATARO KCNNO
 OSAMU KONOSU
 GENZABURO KURAISHI
 K KURODA
 MITSUO KUSANO
 SHIGEYA KWABARA
 KUNIO MANO
 TAKENOBU MATSUMURA
 MASAO MATSUO
 FUMIO MINOURA
 SHOICHI MITANI
 SHOTA MIYAIRI
 TAKEO MIYATA
 E MIYAZAWA
 MITITADA MORISUF
 KEITARO MORITA
 TOKIO MUTO
 YUKIO NAKAGOME
 JIRO NAKAMURA
 HIDEO NAKANO
 OSAMU NISHINO
 YASUJIRO NIWA
 TSUTOMU NOMURA
 NOBUO NUMASAKI
 M NUMOTO
 SUKIRO OBATA
 NORIOMI OCHIAI
 NAOYUKI OGASAWARA
 SHINCHIRO OGAWA
 KANICHI OHASHI
 TOSHIMI OKUBO
 TAKASHI OHOKA
 KENZO OKUDA
 TSUNEHIKO OKURA
 SHUNICHI OMORI
 KOICHI OSHIMA
 SEIGO OUCHI
 KEN-ICHI OWAKI
 YONG J PARK
 YUKIHARU SAMESHIMA
 MASAFUMI SASAKI
 T SAWAMURA
 HIDEO SHIMA
 CHOSUKE SUGI
 MASAHIRO SUZUKI
 IKUO TAKEDA
 MASATAKA TAKEDAI
 OKADA TAKEO
 IKUO TANAKA
 KATSUSHI TANAKA
 FUSAO TANIGUCHI
 HIROTSUGU TAOKA
 KAZUMA TATEISHI
 N TATSUMI

KAZUTO TOGINO
 RYUTICHI TOMIASU
 MASAMI TOMONO
 KISHIO TSUROI
 YOSHIHIRO TSUNODA
 MASAMI UCHINAMI
 YOSHIHIKO UMEMURA
 TERUHIRO UMEZU
 HAJIME YAMAGUCHI
 MASARU YAMANO
 KENJI YAMAJI
 DAIGO YASUKAWA
 H YOKOHAMA
 S YOSHIDA
 TSUGUO YOSHIDA
 TAKEO YOSHINO

OVERSEAS MILITARY
 GEORGE S BRYAN
 LARRY L BURK
 D K CHURCH
 NORMAN L CRAIG

NO ESTABLISHED SECTION
 INKU KANG
 NAM K LEE
 WU-IL LEE
 GIL S SULIT JR
 PHILIP M TURBITT JR
 S C VICHAT
 TAE S YIM