

# *International Glaucoma Symposium*

Nara / Japan, May 7-11, 1978

President: W. Leydhecker

Organizers: W. Leydhecker, S. Mishima, Y. Kitazawa  
in cooperation with: Japanese Glaucoma Club

Editors: G. K. Krieglstein and W. Leydhecker



Participants of the Nara-Symposium

We are indebted to the following producers for substantial help:

Allergan Pharmaceuticals, Inc., Irvine, Ca., USA  
Alza Corporation, Palo Alto, USA  
American Optical Comp., West-Germany  
Basotherm GmbH, Biberach, West-Germany  
C.H. Boehringer Sohn, Ingelheim, West-Germany  
Chibret Pharmazeutische GmbH, West-Germany  
Chemie Grünenthal GmbH, Stolberg, West-Germany  
Optotechnik Heine K.G., Herrsching, West-Germany  
Pharm-Allergan Vetr. GmbH, Karlsruhe, West-Germany  
Stierlen-Maquet AG, Rastatt, West-Germany  
Dr. K. Thomae GmbH, Biberach, West-Germany  
Dr. Robert Winzer, Chem.-Pharm. Fabrik, Konstanz, West-Germany

Foreword of the President of the International Council of Ophthalmology . . . . .	IX
Preface . . . . .	XI
List of Contributors . . . . .	XIII
Carboanhydrase Inhibitor Test for Early Detection of Glaucoma (Erik Linnér) .	1
Discussion . . . . .	5
Prognostic Value of Epinephrine Response (Allan E. Kolker, Michael A. Kass, Bernard Becker) . . . . .	11
Discussion . . . . .	17
Adrenoceptor Mechanisms in the Outflow Channels of Normal and Glaucomatous Eyes (Maurice E. Langham) . . . . .	19
Discussion . . . . .	25
New Hypothesis on Anterior Chamber Developmental Anomalies Associated with Glaucoma (Carl Kupfer) . . . . .	27
Results of Goniotomy and Trabeculotomy as the Initial Surgical Procedure in the Treatment of Congenital Glaucoma (Celso Antonio de Carvalho, Alberto Jorge Betinjane, Mario Luiz Camargo) . . . . .	33
Congenital Glaucoma: Light and Scanning Electron Microscopy of Trabeculectomy Specimens (Roberto Sampaolesi, Jorge O. Zarate, Rafael Caruso) . . . . .	39
Otto Barkan and the Pathophysiology of Primary Congenital (Infantile) Glaucoma (Robert N. Shaffer) . . . . .	53
Discussion . . . . .	57
Earliest Visual Field Disturbances in Glaucoma (Stephen M. Drance) . . . . .	61
Kinetic Perimetry: Interobserver Variations (Nassim Calixto, Yehuda Waisberg, Geraldina P. Costa, Maria A. Gomes) . . . . .	65
Automatic Perimetry in Secondary Prevention of Glaucoma (Bo Bengtsson and C.E.T. Krakau) . . . . .	71
Discussion . . . . .	77

Pros and Cons of Quick-Tests in Glaucoma Perimetry (Elfride Aulhorn) . . . . .	79
Discussion . . . . .	89
Autoregulation of Blood Flow in the Distal Segment of the Optic Nerve (J. Terry Ernest) . . . . .	93
Discussion . . . . .	99
Observer Variation in Applanation Tonometry and Estimation of the Cup Disk Ratio (W. Leydhecker, G.K. Krieglstein, E.v. Collani) . . . . .	101
Discussion . . . . .	113
Pathogenesis of Block of Rapid Orthograde Axonal Transport by Elevated Intra- ocular Pressure (Sohan Singh Hayreh, Wayne March, Douglas R. Anderson) . .	119
Discussion . . . . .	127
Summary Report of "Biostatistical Analysis of the Collaborative Glaucoma Study" (Mansour F. Armaly, Dean Krueger, Cindy Maunder) . . . . .	131
Discussion . . . . .	137
Present Trends in Glaucoma Research (Steven M. Podos) . . . . .	141
Discussion . . . . .	147
Advances in Ocular Pharmacology (Irving H. Leopold) . . . . .	149
Mechanism of Adrenergic Treatment of Glaucoma (Marvin L. Sears) . . . . .	153
Discussion . . . . .	157
Effects of Adrenergic Drugs on the Eye: Some Experimental Studies (Saiichi Mishima, Tadashi Tamura, Masahiro Takase, Shigetoshi Nagataki) . . . . .	159
Discussion . . . . .	167
Diurnal Variation of Intraocular Pressure and Its Significance in the Medical Treatment of Primary Open-Angle Glaucoma (Yoshiaki Kitazawa and Takashi Horie) . . . . .	169
Discussion . . . . .	177
Response of the Intraocular Pressure to Various $\beta$ -Blocking Agents (Günter K. Krieglstein) . . . . .	179
Discussion . . . . .	187
Principles and Selection of Surgical Methods in Primary Glaucoma (H. Harms) .	191
Discussion . . . . .	197
Laser Treatment in Glaucoma (M.M. Krasnov) . . . . .	201
Recent Advances in Glaucoma Microsurgery (J. Draeger) . . . . .	205
Discussion . . . . .	211
Closing Remarks (W. Leydhecker) . . . . .	211
Subject Index . . . . .	215

## Foreword

The International Council of Ophthalmology agreed to the creation of an International Glaucoma Committee, which should have a limited number of members, 40 at a maximum. This committee will hold a closed meeting every 4 years on the occasion of the International Congress of Ophthalmology and will report to the International Council on the practical and clinical advances in glaucoma detection and treatment. This report will be published in the proceedings of the International Congress. The committee will advise and direct the activities of the International Glaucoma Society, which will hold a glaucoma symposium prior to each International Congress of Ophthalmology and which will be open to anyone interested in glaucoma.

This is now the first meeting of the committee. When I look at the program and the names of the speakers, I am convinced that it will be very fruitful. This is my most sincere wish.

I should like to thank very warmly Prof. Leydhecker for preparing the organization of this group and the scientific program and Prof. Mishima, Prof. Kitazawa, and all of their staff for having so beautifully organized this symposium, which will be very successful, and for having received us with such generous hospitality.

I am very grateful to each of the members of the International Glaucoma Committee and to each of our Japanese friends involved in this symposium.

Prof. Dr. Jules François  
President of the International Council of Ophthalmology

The first meeting of the International Glaucoma Committee was held at Nara, the ancient capital of Japan. The symposium continued the tradition of similar meetings preceding the International Congress of Ophthalmology: St. Marguerithe (1954), Liège (1958), Tutzing (1966), Albi (1974). Why did all participants decide to continue such meetings in the future? There are several reasons:

We need an international forum for the discussion of a disease that still continues its sinister role in all countries, in spite of the world-wide efforts to fight it. A discussion of experts from different regions of the world will show new facets of the disease, since ophthalmological traditions, research interests, and clinical decisions differ from country to country. The discussions show to what extent differences are based on facts and to what extent on beliefs and how much they are possibly influenced by a different structure of research and of clinical medicine. Only a meeting that allots more time to discussions than it does to papers will give more opportunity for criticism than a journal or a meeting of the traditional type could do. Discussions will necessarily have an open end character, which is not pleasing to anyone who hopes for thumb rules. At our symposium, all papers were precirculated to each member, and at the meeting only a short introduction was required for each contribution, so that most of the time was free for discussions. Further advantages of this type of meeting are that: (1) very recent work can be presented and criticized before publication; (2) it is possible to discuss research that gave unsatisfactory results and that one would not easily bring to the attention of a large audience; (3) prospects of research can be discussed; (4) it becomes clearer to each research worker where he will work at his best, basically or clinically; (5) the program can be kept very flexible; and (6) hopefully, efforts of different centres or individuals might be combined. By meeting each other, by talking and listening to each other, both inside and outside the lecture hall, we will succeed in understanding each other. This requires a small number of participants who live under the same roof for a few days, if possible in an area remote from the noise and distractions of a large city. This was or-

ganized at its best by Dr. Kitazawa, who did a marvelous job together with his residents and secretaries to make the meeting a full success. The thanks of all participants are also due the commercial companies who gave financial support to the meeting.

Finally, the thanks of the editors are due Springer Publishers for their co-operation in preparing this volume.

Würzburg, 12.7.78

W. Leydhecker

## List of Contributors

- Armaly, M.F.  
George Washington University, Medical Center, Department of Ophthalmology  
2150 Pennsylvania Ave., Washington, D.C. 20037, USA ..... 131
- Aulhorn, E.  
University Eye Hospital  
Schleichstraße 12, 7400 Tübingen, Federal Republic of Germany ..... 79
- Bengtsson, B.  
University Eye Clinic, Department of exp. Ophthalmology  
S-22185 Lund, Sweden ..... 71
- Calixto, N.  
1177, Graç Mogol, Belo Horizonte,  
Brasil ..... 65
- De Carvalho, C.A.  
Rua Prof. Artur Ramos, 96 8º-and.  
Sao Paulo-01454, Brasil ..... 33
- Draeger, J.  
Augenklinik Zentralkrankenhaus  
St. Jürgenstraße, 2800 Bremen, Federal Republik of Germany .....205
- Drance, S.M.  
University of British Columbia, Department of Ophthalmology  
2550 Willow Street, Vancouver, B.C. V5Z 3N9, Canada ..... 61
- Ernest, J.T.  
University of Wisconsin Hospitals, Center for Health Sciences  
1300 University Ave., Madison, Wisc. 53706, USA ..... 93
- Harms, H.  
University Eye Hospital  
Schleichstraße 12, Tübingen, Federal Republik of Germany ..... 191
- Hayreh, S.S.  
University of Iowa, Department of Ophthalmology, Iowa City  
Iowa 52242, USA ..... 110

XIV

Kitazawa, Y. University of Tokyo, School of Medicine, Department of Ophthalmology 7-3-1 Hongo, Bunkyo-Ku, Tokyo-113, Japan .....	169
Kolker, A.E. Washington University, Department of Ophthalmology 660 South Euclid Ave., St. Louis, Miss. 63110, USA .....	11
Krasnov, M. Director State Institute of Ophthalmology, 5 Pogodinskaja st. Moscow-119435, USSR .....	201
Kriegelstein, G.K. University Eye Hospital Josef-Schneider-StraÙe 11, 8700 Würzburg, Federal Republik of Germany ...	179
Kupfer, C. National Eye Institute, National Institute of Health, Buildg. 31 9000 Rockville Pike, Bethesda, Maryland 20014, USA .....	27
Langham, M.E. The Wilmer Institute, Johns Hopkins University, Ophthal. Research Unit Baltimore, Maryland 21205, USA .....	19
Leopold, I.H. University of California, California College of Medicine, Department of Ophthalmology Irvine, Cal. 92717, USA .....	149
Leydhecker, W. University Eye Hospital Josef-Schneider-StraÙe 11, 8700 Würzburg, Federal Republik of Germany ...	101
Linnér, E. University of Göteborg, Department of Ophthalmology, Sahlgren's Hospital S-41345 Göteborg, Sweden .....	1
Mishima, S. University of Tokyo, School of Medicine, Department of Ophthalmology 7-3-1 Hongo, Bunkyo-Ku, Tokyo-113, Japan .....	159
Podos, St. Department of Ophthalmology, Mount Sinai Hospital New York City, N.Y., USA .....	141
Sampaolesi, R. Parana 1239.1., A-Buenos-Aires, Argentina .....	39
Sears, M.L. Yale University, School of Medicine 333 Cedar Street, New Haven, Conn. 06510, USA .....	153
Shaffer, R.N. University of California, Glaucoma Clinic A 775 San Francisco, Cal. 94143, USA .....	53