

TABLE OF CONTENTS

Foreword _____ <i>Costa G. (I)</i>	13
Introduction _____ <i>Wedderburn A. (GB)</i>	15
Introductory Lecture: Development of New International Standards on Night Work _____ <i>Kogi K., Thurman J. E. (ILO)</i>	19
A Celebration of the Life of Joseph Rutenfranz _____ <i>Wedderburn A. (GB), Knauth P. (D), Oginski A. (PL), Daniel J. (CS), Seibt A. (DDR), Adum O. (YU), Haider M. (A), Ilmarinen J. (SF), Attia M. (SUD), Fischer F. M. (BR), Colquhoun J. P. W. (GB), Folkard S. (GB)</i>	25
Topic 1: Women and Nightwork	
<i>Kogi K. (J)</i> Women and Nightwork. An Introduction _____	39
<i>Beermann B., Rutenfranz J., Nachreiner F. (D)</i> Gender Related Effects of Shiftwork? An Analysis of Some Confounding Variables _____	45
<i>Beermann B., Schmidt K.-H., Rutenfranz J., Saito J. (D-J)</i> Effects of Working Time Conditions and Family Background on Daily Activity Patterns in a Group of Shiftworking Nurses _____	52
<i>Bohle P. (AUS)</i> The Impact of Night Work: Individual Differences in Subjective Health _____	56
<i>Costa, G., Micciolo R., Bertoldi L., Tommasini M. (I)</i> Absenteeism among Female and Male Nurses on Day and Shiftwork _____	62
<i>Costa G., Olivato D., Peroni E., Mossini E., Gonella C. (I)</i> Problems Connected to the Introduction of Night Work in a Group of Female Workers of a Food Industry _____	68
<i>Dekker D. K., Tepas D. I. (USA)</i> Gender Differences in Permanent Shiftworker Sleep Behavior _____	77
<i>Epstein R., Tzischinsky O., Chillag N., Lavie P. (IL)</i> Rotating Shift-Worker Women in a Microelectronic Industry _____	83
<i>Estryn-Behar M., Gadbois C., Peigne E., Masson A., Le Gall V. (F)</i> Impact of Nightshifts on Male and Female Hospital Staff _____	89
<i>Iskra-Golec I., Pokorski J. (PL)</i> Sleep and Health Complaints in Shiftworking Women with Different Temperament and Circadian Characteristics _____	95

<i>Kandolin I., Kauppinen-Toropainen K. (SF)</i> The Psychological Aspects of Women's Shift Work _____	101
<i>Makowiec-Dabrowska T. (PL)</i> Social Aspects of Undertaking Shiftwork Including Night Shift of Women Workers in Poland ____	107
<i>Ogiński A., Kuleta J., Pietsch E., Ogińska H., Pokorski J. (PL)</i> Daylong Burden of Female Shiftworkers _____	111
<i>Perera S. E. G. (CL)</i> Some Problems of Shift-Working Women in Asian Developing Countries _____	117
<i>Pokorski J., Iskra-Golec I., Czekaj M., Noworol C. (PL)</i> Menstrual Rhythm and Shiftwork Interference – A Subjective Retrospective Study _____	125
<i>Presser H. B. (USA)</i> The Growing Service Economy: Implications for the Employment of Women at Night _____	131
<i>Robson M., Wedderburn A. (GB)</i> Women's Shiftwork and Their Domestic Commitments _____	137
<i>Singer G., Levens M. (AUS)</i> Gender and Personality as Variables in Coping with Shiftwork _____	143
<i>Smith A. P., Wilson M. (GB)</i> The Effects of Naps During Night Duty on the Performance and Mood of Female Nurses Working in an Intensive Care Unit _____	147
<i>Suvanto S., Härmä M., Ilmarinen J. (SF)</i> Effects of Rapid Time Zone Changes on Flight Attendants' Circadian Rhythms _____	153
<i>Zahorska-Markiewicz B., Kułagowska E., Bogunia M., Węgrzyn-Radecka B. (PL)</i> Effects of Shiftwork on Women's Well-Being _____	158
Topic 2: Standardization of Questionnaires on Shiftwork	
<i>Nachreiner F. (D)</i> Towards Standardization of Methodology in Shift Work Research _____	165
<i>Brown F. M. (USA)</i> Sleep-Nap Behaviors of Three Permanent Shifts of Hospital Nurses _____	173
<i>Bruni A., Fischer F. M. (BR)</i> Evaluation of Reproducibility of Questionnaires Regarding Habits and Preferences _____	179
<i>Costa G., Dirckx J., Peroni E., Borzellino G., Verhaegen P. (I-B)</i> A Comparison of Some Questionnaire Scores of Italian and Belgian Shift and Day Workers ____	185
<i>Grzech-Sukalo H., Hedden I., Nachreiner F. (D)</i> The Relation of Periodic Components and Psychosocial Impairment for Selected Shift Rotas ____	191

<i>Hedden I., Grzech-Sukalo H., Nachreiner F. (D)</i> Classification of Shift Rotas on the Basis of Periodic Components _____	197
<i>Meijer S., Ng-A-Tham J. (NL)</i> Utility of Time: Measurement and Use _____	203
<i>Olsson K., Kandolin I. (SF)</i> Strains and Satisfaction of Three-Shift Workers – An Interview Method for Occupational Health Care _____	207
<i>Vidacek S., Kaliterna L., Radosevic-Vidacek B., Prizmic Z. (YU)</i> Tolerance to Shiftwork Assessed by Means of the Way of Life Questionnaire _____	214
<i>Vidacek S., Radosevic-Vidacek B., Kaliterna L., Prizmic Z. (YU)</i> The Behavioural Arousal Questionnaire: Factor Structure, Concurrent and Predictive Validity for Assessment of Tolerance to Shiftwork _____	220
<i>Wernette D. R., Ehret C. F. (USA)</i> Shiftwork Questionnaires: Aims, Methods, Content and Yield _____	226
Topic 3: Influence of Light on Re-Entrainment of Circadian Rhythms	
<i>Minors D. S., Waterhouse J. M. (GB)</i> The Influence of Light on the Entrainment of the Circadian System: An Introduction _____	235
<i>Clodoré M., Benoit O., Foret J. (F)</i> Bright Light Exposure in the Early Morning Facilitates the Entrainment of Human Circadian Rhythms _____	241
<i>Ehrenstein W., Weber F. (D)</i> Psychophysiological Field Studies in the Effects of Bright Light on Shiftworkers During Prolonged Shift Periods _____	247
<i>Gundel A., Maass H., Samel A., Schuetz M., Vejvoda M., Wegmann H. (D)</i> Melatonin Treatment of Jet-Lag (Abstract) _____	253
<i>Härmä M., Laitinen J., Partinen M., Ilmarinen J., Suvanto S. (SF)</i> The Effects of Light on the Adaptation of the Circadian Rhythms among Flyght Attendants _____	254
<i>Koller M., Kundi M., Härmä M., Laitinen J., Stidl H. G., Piegler B. (A-SF)</i> Salivary Melatonin Profiles and Light Exposure of Permanent Night Workers _____	260
<i>Moog R., Hildebrandt G., Klöppel H. K. (D)</i> Circannual Variations of Human Circadian Phase Positions under Reduction of Masking Effects (Abstract) _____	266
<i>Moog R., Hildebrandt G., Plamper H., Stefens B. (D)</i> Phase Adjustment of Circadian Rhythms in Blind Persons (Abstract) _____	267

Topic 4: Condensed Working Hours

<i>Tepas D. I. (USA)</i> Condensed Working Hours: Questions and Issues _____	271
<i>Conrad-Betschart H. (CH)</i> Designing New Shift Schedules: Participation as a Critical Factor for an Improvement _____	277
<i>Daniel J. (CS)</i> Morbidity and Absenteeism Rates of Operators Connected with Duration of Shift _____	283
<i>De Vries G. M., De Vries-Griever A. H. G. (NL)</i> The Process of Developing Health Complaints: A Longitudinal Study of the Effects of Abnormal, Irregular and Condensed Working Hours _____	290
<i>Hadjiolova I., Kitipov G., Deyanov C., Mincheva L. (BG)</i> Cardiovascular Changes in Operators under Condensed Working Hours _____	297
<i>Jansen B., Mul C. (NL)</i> The Time Compensation Module System as an Alternative for the Compressed Working Week _____	303
<i>Moors S. H. (B)</i> Learning from a System of Seasonally-Determined Flexibility: Beginning Work Earlier Increases Tiredness as Much as Working Longer Days _____	310
<i>Ng-A-Tham J. E. E., Meijer S. (NL)</i> Financial Compensation of the Inconveniences of Night- and Shiftwork _____	316
<i>Seibt A., Tannenhauer J., Jakubowski J., Schuring H. U., Friedrichsen G., Röhner J. (DDR)</i> On the Effects of 12hr Shifts on Acute Stress and Strain _____	318
<i>Tsaneva N., Nicolova R., Topalova M., Danev S. (BG)</i> Changes in the Organism of Shift Workers Operating a Day and Night 12 Hour Schedule on Carbon Disulfide Production _____	324
<i>Wallace M., Owens W., Levens M. (AUS)</i> Adaptation to Twelve Hour Shifts _____	330
Topic 5: Coronary Risk Factors and Diseases Caused or Attributed to Shift and Nightwork	
<i>Cesana G. C. (I)</i> Shiftwork, Stress and Coronary Risk. Discussion of a Research Perspective _____	339
<i>Adum O. (YU)</i> Frequency of Higher Blood Pressure in Shiftworkers (Abstract) _____	355
<i>Brown F. M. (USA)</i> A Five-Factor Effects Model of Viability for Shiftworkers _____	356
<i>Cesana G. C., Finotti S., De Vito G. (I)</i> CHD Risk Factors Prevalence in Middle Aged Shift Workers (Abstract) _____	362

<i>Costa G., Betta A., Uber D., Alexopoulos C. (I)</i> Estimate of Coronary Risk in a Group of Italian Shiftworkers _____	363
<i>De Vries G. M., De Vries-Griever A. H. G. (NL)</i> Sleep Problems and State of Health: A Replication of the Effects of Abnormal, Irregular and Condensed Working Hours _____	370
<i>Handjiev Sv. (BG)</i> Study on Coronary Risk Factors and Metabolic Diseases among Shift and Night Transport Workers _____	376
<i>Knutsson A., Åkerstedt T. (S)</i> Shift Work and Disease – A Model of Disease Mechanism _____	380
<i>Lennernäs A. C., Andersson A., Hambræus L. (S)</i> Nutrient Dietary Patterns among Male Shiftworkers in Sweden _____	386
<i>Mincheva L., Hadjiolova I., Kitipov G., Topalova M. (BG)</i> Cardiovascular and Endocrine Activity in Air Traffic Controllers under Shift Work _____	392
<i>Moore-Ede M. C., Richardson G. S., Krieger G. R., Darlington A. C. (USA)</i> Shift Maladaptation Syndrome: Pathogenic Role of Chronic Sleep-Wake Disruption? (Abstract) __	398
<i>Romon M., Grabiand M. H., Nuttens M. C., Fievet C., Bar J. M., Pot Ph., Furon D. (F)</i> Plasma Lipids and Shift Work _____	399
<i>Sjöblom T., Mänttari M., Koskinen P., Manninen V., Frick M. H. (SF)</i> Shiftwork and Risk of Myocardial Infarction (Abstract) _____	405
Topic 6: Sleep and Performance on Shift and Nightwork	
<i>Åkerstedt T. (S)</i> Sleep and Performance - An Introduction _____	409
<i>Aguirre A., Cerezo V., Rodriguez-Valdés J., Lopez Aira J. M. (E)</i> Sleep and Subjective Fatigue in Spanish Railway Workers as a Function of Working Schedules _____	415
<i>Åkerstedt T., Torsvall L., Kecklund G., Knutsson A. (S)</i> The Shift Cycle and Clinical Indices of Insomnia _____	421
<i>Attia M., Abdallah Y., Gindeel H. I. (SUD)</i> Combined Effect of Shift Work and Heat Stress _____	427
<i>Blom D. H. J., Pokorny M. L. I., Opmeer C. H. J. M. (NL)</i> Effects of Work and Circadian Rhythm on Various Physiological Variables with Bus Drivers __	438
<i>Campbell D. G., Smith A. P. (GB-ZA)</i> Temporal Patterns in the Accidents of Mine Workers in South Africa _____	443
<i>De Haan E. G. (NL)</i> Improving Shiftwork Schedules in a Buscompany: Towards More Autonomy _____	448

<i>Dirkx J., Verhaegen P. (B)</i> Activity Monitoring During Sleep, an Objective Measurement of Sleep Quality? _____	455
<i>Duchon J. C., Keran C. M. (USA)</i> The Effects of Sleep Strategies on the Health, Length and Quality of Sleep of Rotating Shiftworkers on the Night Shift _____	461
<i>Eilers K., Nachreiner (D)</i> Time of Day Effects in Vigilance Performance at Simultaneous and Successive Discrimination Tasks _____	467
<i>Fibiger W., Wallace M., Singer G., Owens W. (AUS)</i> Urinary Adrenaline as a Measure of Mental Effort. An Attempted Objective Mental Effort Classification _____	473
<i>Fischer F. M., Tenreiro S. Q., Benedito-Silva A. A., Marques N., Menna Barreto L., Moreno C. R. (BR)</i> Individual Differences of Shift and Night Work Adaptation among Truck Drivers _____	478
<i>Folkard S., Arendt J., Clark M. (GB)</i> Sleep, Mood and Performance on a "Weekly" Rotating (7-7-7) Shift System: Some Preliminary Results _____	484
<i>Foret J. (F)</i> Train Drivers: The Design of Work Schedules Does Not Take into Account the Chronobiological Standpoint _____	490
<i>Glazner L. K. (USA)</i> Shiftwork and Injuries in the Fire Service _____	495
<i>Hänecke K., Nachreiner F. (D)</i> Strategy Changes in Monitoring Behaviour at Different Times of the Day _____	501
<i>Härmä M., Partinen M., Suvanto S., Ilmarinen J. (SF)</i> The Effect of Rapid Time Zone Changes on the Autonomic Sleep Phases of Flight Attendants _____	507
<i>Härmä M., Suvanto S., Partinen M., Ilmarinen J. (SF)</i> The Effect of Rapid Time Zone Changes on the Sleep Length and Quality of Flight Attendants _____	513
<i>Ilmarinen J., Harma M., Tuomi K. (SF)</i> Factors Related to Tiredness Before, During and After the Work Shift (Abstract) _____	519
<i>Ilmarinen J., Tuomi K., Härmä M. (SF)</i> Tiredness and Work Content (Abstract) _____	520
<i>Kamal A. M., Elsobky M. R., Faris R. (ET)</i> Evaluation of the Auditory Effect of Noise in Day and Night Shifts (Abstract) _____	521

<i>Kerkhof G. A. (NL)</i> Morning-Types and Evening-Types Differ in the Distribution of REM Sleep and EEG Slow Wave Activity During Night- and Day-Sleep _____	522
<i>Kiesswetter E. (D)</i> Adaptation Phenomena and Criteria in Shift Work. A Behavior Oriented Approach _____	531
<i>Knauth P., Schönfelder E. (D)</i> Effects of a New Shift System on the Social Life of Shiftworkers _____	537
<i>Kogi K., Thurman J. E. (ILO)</i> An International Review of Shift Work in the Chemical Industries _____	546
<i>Lancry A., Salgarolo R., Arbault T., Romon M. (F)</i> Alertness and Shifted Process Control Work _____	552
<i>Minors D. S., Waterhouse J. M., Folkard S. (GB)</i> Overcoming Masking Effects During Irregular Sleep-Activity Cycles: An Alternative to Constant Routines _____	558
<i>Moog R., Hildebrandt G. (D)</i> Low Mental and Physical Loads Are Able to Mask Measurement of Spontaneous Circadian Courses and of Reactions to Loads _____	564
<i>Mori K., Nishihara K. (J)</i> The Levels of Urinary Adrenaline During REM Sleep Deprivation as a Model of Disturbed Sleep on Shift Work _____	571
<i>Nedeltcheva K., Nikolova N. A., Stoynev A. G., Handjiev S. (BG)</i> Excretion of Catecholamines and Glucocorticoids in Shift Working Railwaymen _____	577
<i>Nikolova N., Handjiev Sv., Angelova K. (BG)</i> Nutrition of Night and Shift Workers in Transports _____	583
<i>Ogińska H., Ogiński A. (PL)</i> Sex Differences in Sleep Behaviour of Shiftworkers _____	589
<i>Queinnec Y., Maury P., Miquel M. T. (F)</i> Qualitative Circadian Changes in Information Processing During Shiftwork _____	595
<i>Rovesti S., Bergomi M., Caselgrandi E., Tartoni P. L., Vivoli G. (I)</i> Biochemical Indicators of Stress in Shift Workers of Ceramic Industry _____	601
<i>Saito Y., Matsumoto K. (J)</i> Relation Between Change in Arousal Level With Shift of Sleeping Time and Subsequent Sleep Stage Pattern (Abstract) _____	607
<i>Schiebeler H., Pluto R., Germann C., Messerer P., Zober A. (D)</i> Preventive Occupational Medical Examinations for Shift Workers _____	608
<i>Smith A. P., Owen S. (GB)</i> Time of Day and Accidents in Marine Pilotage _____	617

<i>Stampi C., Broughton R., Mullington J., Rivers M., Campos J. (CDN)</i> Ultrashort Sleep Strategies During Sustained Operations: The Recuperative Value of Multiple 80-, 50- and 20-min Naps _____	623
<i>Strong R. J. (GB)</i> Extended Periods of Long Working Days: Effects on Mood and Task Performance (Abstract) _____	629
<i>Tenreiro S. Q., Fischer F. M., Benedito-Silva A. A., Marques N., Moreno C. R., Menna Barreto L. (BR)</i> Sleep Fragmentation During Shiftwork: Possible Role in Adaptation _____	630
<i>Tepas D. I., Popkin S. M., Dekker D. K. (USA)</i> A Survey of Locomotive Engineers on Irregular Schedules and Their Spouses: A Preliminary Report _____	636
<i>Torsvall L., Åkerstedt T. (S)</i> EEG/EOG Changes as Indicators of Sleepiness in Shift Work _____	642
<i>Totterdell P., Folkard S. (GB)</i> The Effects of Changing from Weekly Rotating to a Rapidly Rotating Shift Schedule _____	646
<i>Tzischinsky O., Epstein R., Lavie P. (IL)</i> Sleep-Wake Cycle in Rotating Shift Workers: Comparison Between 3- and 5-Day Shift System _____	651