



THE 20TH PRAGUE-LUBLIN-SYDNEY-ST. PETERSBURG SYMPOSIUM

Interdisciplinary approach to growing skeleton 2

12th – 16th September 2018 | Kroměříž | Czech Republic





Society For Connective Tissues CMA J.E. Purkyně & Society for Prosthetics and Orthotics CMA J.E. Purkyně & Czech Society of Biomechanics & Czech Medical Association J.E. Purkyně & Medical University of Lublin & Vincent Pol University in Lublin & Children's Rehabilitation Center of Orthopaedics and Traumatology "Ogonyok", St. Petersburg

invite you to

THE 20TH PRAGUE-LUBLIN-SYDNEY-ST. PETERSBURG SYMPOSIUM

main topic

INTERDISCIPLINARY APPROACH TO GROWING SKELETON 2

The Symposium will be held in Kroměříž, hotel "Octárna", Czech Republic in September 12–16, 2018

under the auspices of
of the chairman of the Chamber of Deputies of the Parliament of the Czech Republic

Radek Vondráček, MSc

&

the honorary president of the Czech Medical Association J.E. Purkyně

Professor Jaroslav Blahoš, MD, DSc.

&

the honorary president of the Society for Connective Tissues CMA J.E. Purkyně

Professor Josef Hyánek, MD, DSc.

The Symposium belongs to education actions integrated into the life training system of physicians according to professional statute No. 16 of the General Medical Council.



Speech of welcome to
**The 20th Prague-Lublin-Sydney-St. Petersburg Symposium –
Interdisciplinary approach to growing skeleton 2**

Kroměříž, September 13, 2018

Dear Ladies and Gentlemen, my dear colleagues!

I cordially welcome you at **The 20th Prague-Lublin-Sydney-St. Petersburg Symposium**. It is my great honour to welcome among us the chairman of the Chamber of Deputies of the Parliament of the Czech Republic Radek Vondráček, MSc. With pleasure I welcome here Professor Jaroslav Blahos, MD, DSc., honorary president of the Czech Medical Association (CMA) J.E. Purkyně (JEP). He successfully administrated this Association for 25 years. I still remember him as my teacher of internal medicine and later as my consultant in the field of Metabolic Bone Diseases. My pleasure is to welcome here the next distinguished celebrity of the Czech medicine Professor Josef Hyánek, MD, DSc., who has celebrated his 85th anniversary this year. He is our family friend and my advisor not only in medicine. He is a well known specialist in the field of biochemistry focused on diagnostics of inherited metabolic diseases and the founder of organized care for children with inherited metabolic disorders in the Czech Republic. My special reception belongs to my friend Professor Michael Bellemore, AM FRACS, well-known paediatric orthopaedic surgeon from The Children's Hospital at Westmead, Sydney, Australia.

I cordially welcome all colleagues, specialists of different medical branches, specialists in biomechanics, orthotics, physiotherapy and the others who are interested in disorders of neuro-musculo-skeletal system. At present, interdisciplinary approach to congenital and acquired skeletal deformities was accepted as the main line of thought how recognize the new connections regarding etiology, pathogenesis and last but not least the comprehensive and even causative (in a few diagnoses) therapy of genetic skeletal disorders.

I am very pleased that this year the topic of the Symposium attracted colleagues from Australia, Austria, Belarus, Czech Republic, Germany, Greece, the Netherlands, Poland, Russia and Ukraine (i.e. representatives of 10 nations) and we are looking forward to their outstanding lectures and fruitful discussions.

A special session is **dedicated in memory of Milan Roth** who discovered and experimentally proved the anatomical discongruency of growth between the neural tissue and the enveloping skeleton, both under and above the foramen magnum and the other neuro-skeletal relations.

I thank to all speakers for their interesting lectures and I believe that scientific lectures will amplified our knowledge which will become a profit for our disabled patients.

My great thanks belong to all International organizers – these are Professor Tomasz Karski, Assistant Professor Jacek Karski, MD, PhD from Lublin, further Prof. Mikhail Dudin, MD, DSc. and his team from St. Petersburg. My warm thanks belong mainly to my close colleague Petr Krawczyk, MD, president of the Orthotic and Prosthetic Society CMA JEP who arranged for us very interesting cultural programme. The organizers are grateful for the support of The Symposium to the Partners **ottobock.** and **Proteor s.r.o.**

I wish you to enjoy new scientific information, the beauty historical landmarks of Kroměříž that are protected by UNESCO and I wish you to make new friendships which will help us to arrange international and interdisciplinary scientific research.

It is my sad obligation to mention that honorary member of the Society for Connective Tissues, CMA, J.E. Purkyně Professor Jaromír Kolář, MD, DSc. died in November 2017. Honour to his memory!

Now, let me a short reminiscence of a few moments that we spent with most of you in beautiful Prague in September 2017. Look at photos.

At the end of my speech I would like to remember you our close colleagues and friends Professors Jacques Cheneau, Georg Neff and Kazimierz Kozlowski. They sincerely wish as I great success to The 20th Prague-Lublin-Sydney-St Petersburg Symposium.

Professor Ivo Marik, MD, PhD, FABI

Chief of the Centre for Patients with Locomotor Defects, Prague, CZ
President of the Society for Connective Tissue, CMA J.E.Purkynje
Scientific secretary of the Society for prosthetics and orthotics Czech Medical Association J. E. Purkynje
Chief-Editor of the journal Locomotor System – advances in research, diagnostics and therapy
E-mail: ambul_centrum@volny.cz

Dear Participants of The 20th Prague – Lublin – Sydney – St. Petersburg Symposium in Kroměříž,

as many times before, now for the 20th time, we – orthopedic surgeons, rehabilitation doctors, pediatricians, general doctors, general surgeons, nurses and physiotherapists gather during this Symposium which takes place from 12th to 16th September 2018. This time, after 3 years, again in Kroměříž, a beautiful town in the east of Czech Republic. Like every year, the Symposium is made possible thanks to a fascinated activity of Prof. Ivo Mařík and his co-organizers.

Here I want to recall the dates and places of last seven Symposia, and in this list also three Symposia held in Poland.

In 2011 the 13th Prague-Sydney-Lublin Symposium took place in Rhodos (Greece).

In 2012 the 14th Symposium was held in Sarbinowo, closely to the Baltic coast (Poland).

In 2013 the 15th Prague-Lublin-Sydney-St. Petersburg Symposium was held in St. Petersburg (Russia) at the Rehabilitation Center “Ogonyok”

In 2014 the 16th Symposium Prague-Lublin-Sydney-St. Petersburg took place in Military Hospital in Lublin (Poland).

In 2015 the 17th Symposium was held in Kroměříž, Czech Republic.

In 2016 the 18th Symposium took place in Guest House „Zacisze“ in Zwierzyniec (Poland).

In 2017 the 19th Symposium Prague-Lublin-Sydney-St. Petersburg gathers us in beautiful Prague.

In 2018 the 20th Symposium Prague – Lublin – Sydney – St. Petersburg is again in Kroměříž.

I wish to all the participants spending a nice time in the Czech Republic, like before also a pleasant meeting of all friends as well as a fruitful and profitable discussion during the whole Symposium.

Good luck to all of you!

Prof. Tomasz Karski MD PhD

Former head of the Paediatric Orthopaedic and Rehabilitation Department
of Medical University in Lublin (1995–2009)

Actually: Professor Lecturer in Vincent Pol University in Lublin

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Dear friends!

In September 2018 we meet with you at the 20th Prague-Lublin-Sydney-St-Petersburg Symposium.

For the fifth time our team from the St. Petersburg Centre 'Ogonyok' will participate in the feast of science, knowledge and experience of fellow scientists, continuing the tradition of the great Jan Evangelista Purkyně. This is how the word 'symposium' (συν + πόσιον = joint good and merry feast) is translated from the ancient Greek language.

There is another important event of this year – 95 years since the birth of the outstanding Czech scientist Milan Roth, whose scientific works were ahead of his time. Today they have become an invaluable basis for our Centre to develop practical methods of real prevention and treatment of the most frequent pathology of the musculoskeletal system – deformations of the spinal column.

The total number of meetings, that have reached twenty, speaks directly of the great foresight of the founders of the Symposium who, before all, realized that the development of modern medicine is impossible without a close union between specialists from various scientific and applied disciplines. Only in interdisciplinary cooperation unexpected and great ideas are born. Ideas that are needed on the path to one goal – to find the most optimal and effective methods of treatment for suffering people.

I would like to emphasize that for several years now the Symposium has taken the first place in the calendar of scientific-practical conferences, in which the employees of the 'Ogonyok' Centre participate. This year we want to not only share our thoughts, but also learn.

Unique benevolence is the most important characteristic of our summits. It is simply permeated with all the scientific discussions, and the events included in the cultural programs.

I sincerely wish the organizers and participants of the Symposium fruitful work, successful presentations and constructive discussions.

Be all healthy and happy!

Professor Mikhail Dudin

Director of Children's Rehabilitation Centre of Orthopedics
and Traumatology "Ogonyok" St. Petersburg, Russia
E-mail: ogonek@zdrav.spb.ru





SYMPOSIUM PROGRAMME

WEDNESDAY, SEPTEMBER 12, 2018

Arrival of participants to Kromeriz

19.00–21.00 WELCOME BANQUET & REGISTRATION OF PARTICIPANTS IN THE HOTEL
"OCTÁRNA", KROMERIZ

THURSDAY, SEPTEMBER 13, 2018

8.30–9.00 REGISTRATION OF PARTICIPANTS IN THE HOTEL "OCTÁRNA"

9.00 OPENING OF THE SYMPOSIUM

Ivo Marik & Tomasz Karski & Mikhail Dudin)

WELCOME SPEECHES

Professor Ivo Marik, MD, PhD

President of the Society for Connective Tissues, Czech Medical Association J.E. Purkyně

Professor Mikhail Dudin, MD, DSc.

Honorary member of the Society for Connective Tissues, Czech Medical Association J.E. Purkyně

Professor Tomasz Karski, MD, PhD

Honorary member of the Society for Connective Tissues, Czech Medical Association J.E. Purkyně

WELCOME SPEECHES OF GUESTS

Radek Vondráček, MSc

Chairman of the Chamber of Deputies of the Parliament of the Czech Republic

Professor Jaroslav Blahoš, MD, DSc.

Honorary president of the Czech medical association J.E. Purkynje

Professor Josef Hyánek, MD, DSc.

Honorary president of the Society for Connective Tissues CMA J.E. Purkynje

9.30–12.00 **MORNING SESSIONS**

SESSION I: BIOMECHANICS – CLINICAL APPLICATION

Chairmen: PETR TYL MIROSLAV, BRAUN MARTIN, BELLEMORE MICHAEL

PETRYL MIROSLAV¹, DENK FRANTISEK¹, LERACH ALES^{3, 4}, VITEK TOMAS⁵, LISAL JAROSLAV¹, MYSLIVEC RADEK^{2, 6}, MARIK IVO^{2, 6, 7} (PRAGUE, CZECH REPUBLIC)

The first electronically controlled distraction fixator stimulating the new bone formation in callus (25+5 min.)

1 Laboratory of Biomechanics and Biomaterial Engineering, Department of Mechanics, Faculty of Civil Engineering, CTU, Prague

2 Centre for Defects of Locomotor Apparatus I.l.c., Prague,

3 Faculty of Mechanical Engineering, CTU, Prague,

4 Medin Orthopaedics, a. s., Prague,

5 Faculty of Electrical Engineering, CTU, Prague

6 Orthopaedic and Traumatology Department, Hospital Pribram, Czech Republic

7 Faculty of Health Care Studies, West Bohemia University, Pilsner, Czech Republic

BRAUN MARTIN (PRAGUE, CZECH REPUBLIC)

Application and potential of bionanotechnologies in osteology and orthopaedics (20+5 min.)

Department of Composites and Carbon Materials, Institute of Rock Structure and Mechanics.

The Czech Academy of Sciences, Prague, Czech Republic

TESAR KAREL^{1, 2}, SUCHARDA ZBYNEK³, BALIK KAREL³ (PRAGUE, CZECH REPUBLIC)

Surface morphology of biodegradable magnesium wires (15+5 min.)

1 Department of Materials, Faculty of Nuclear Sciences and Physical Engineering, Czech Republic

2 Department of Dielectrics, Institute of Physics of the Czech Academy of Sciences, Czech Republic

3 Department of Composites and Carbon Materials, Institute of Rock Structure and Mechanics of the Czech Academy of Sciences, Prague, Czech Republic

11.30–12.00 COFFEE BREAK

Chairmen: MARIK IVO, PETR TYL MIROSLAV, CERNY PAVEL

KRAWCZYK PETR¹, MARIK IVO^{2,5}, JAKUB JOZEF¹, SYKORA ALES¹, ZEMKOVA DANIELA², PETRASOVA SARKA², UCHYTL JAROSLAV³, JANDACKA DANIEL³, BUZGA MAREK⁴ (OSTRAVA & PRAGUE & PILSNER, CZECH REPUBLIC)

Results of kinematic analysis of walking in patients with different weight of prosthesis (15+5 min.)

1 PROTEOR CZ I.I.c., Ostrava, Czech Republic

2 Ambulant Centre for Defects of Locomotor Apparatus I.I.c., Prague, Czech Republic

3 Diagnostic Centre of Human Movement PdF, Ostrava University, Czech Republic

4 Department of Physiology and Pathophysiology, Faculty of Medicine, University of Ostrava, Czech Republic

5 Faculty of Health Care Studies, West Bohemia University, Pilsner, Czech Republic

CERNY PAVEL^{1,2,3}, DRNKOVA JANA³, STOLINSKI LUKASZ^{4,5,6}, CZAPROWSKI DARIUSZ^{7,8}, KOTWICKI TOMASZ⁴, MARIK IVO^{1,9} (PRAGUE & PILSEN, CZECH REPUBLIC – POZNAŃ & SKIERNIEWICE & OLSZTYN, POLAND)

Verification of measuring method of axial pelvic rotation from photographs according to scanned 3D models (15+5 min.)

1 Faculty of Health Care Studies, University of West Bohemia, Pilsner, Czech Republic

2 Faculty of Physical Education and Sport, Charles University, Prague, Czech Republic

3 ORTOTIKA I.I.c., the complex of the Faculty Hospital at Motol, Prague, Czech Republic

4 Department of Spine Disorders and Pediatric Orthopedics, University of Medical Sciences, Poznan, Poland

5 Rehasport Clinic, Poznan, Poland

6 Rehasport Clinic Licensed Rehabilitation Center, Skierniewice, Poland

7 Department of Physiotherapy, Józef Rusiecki University College, Olsztyn, Poland

8 Center of Body Posture, Olsztyn, Poland

9 Centre for Defects of Locomotor Apparatus I.I.c., Prague, Czech Republic

CERNY PAVEL^{1,2,3}, CERNY MICHAL³, DRNKOVA JANA³, STOLINSKI LUKASZ^{4,5,6}, CZAPROWSKI DARIUSZ^{7,8}, KOTWICKI TOMASZ⁴, MARIK IVO^{1,9} (PRAGUE & PILSEN, CZECH REPUBLIC – POZNAŃ & SKIERNIEWICE & OLSZTYN, POLAND)

Measurement of spinal and postural deformities from radiographs and photographs using SCODIAC software (15+5 min.)

1 Faculty of Health Care Studies, University of West Bohemia, Pilsner, Czech Republic

2 Faculty of Physical Education and Sport, Charles University, Prague, Czech Republic

3 ORTOTIKA I.I.c., the complex of the Faculty Hospital at Motol, Prague, Czech Republic

4 Department of Spine Disorders and Pediatric Orthopedics, University of Medical Sciences, Poznan, Poland

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8 Center of Body Posture, Olsztyn, Poland

9 Centre for Defects of Locomotor Apparatus I.I.c., Prague, Czech Republic

E-poster

CERNY PAVEL^{1,2,3}, CERNY MICHAL³, DRNKOVA JANA³, STOLINSKI LUKASZ^{4,5,6}, CZAPROWSKI DARIUSZ^{7,8}, KOTWICKI TOMASZ⁴, MARIK IVO^{1,9} (PRAGUE & PILSEN, CZECH REPUBLIC – POZNAŃ & SKIERNIEWICE & OLSZTYN, POLAND)

Measurement of spinal and postural deformities from radiographs or photographs using dedicated software for computers and smartphones (7+3 min.)

1 Faculty of Health Care Studies, University of West Bohemia, Pilsner, Czech Republic

2 Faculty of Physical Education and Sport, Charles University, Prague, Czech Republic

3 ORTOTIKA I.I.c., the complex of the Faculty Hospital at Motol, Prague, Czech Republic

4 Department of Spine Disorders and Pediatric Orthopedics, University of Medical Sciences, Poznan, Poland

5 Rehasport Clinic, Poznan, Poland

6 Spine Disorders Center, Rehasport Clinic Licensed Rehabilitation Center, Skierniewice, Poland

7 Department of Physiotherapy, Józef Rusiecki University College, Olsztyn, Poland

8 Center of Body Posture, Olsztyn, Poland

9 Centre for Defects of Locomotor Apparatus I.I.c., Prague, Czech Republic

FAMILY PHOTO OF PARTICIPANTS IN THE HOTEL "OCTÁRNA"

13.00–14.00 LUNCH

14.00–17.00 **AFTERNOON SESSIONS**

SESSION II: OSTEOLOGY, BONE METABOLISM

Chairmen: BAYER MILAN, LYRITIS GEORGE, MARIK IVO

LYRITIS GEORGE¹ AND STAVROULA RIZOU² (ATHENS, GREECE)

Peak bone mass (20+5 min.)

1 Emeritus Professor of Orthopedics, Faculty of Medicine, National and Kapodistrian University of Athens, Greece

2 Hellenic Osteoporosis Foundation, Kifissia, Greece

NIKOLAOU DIMITRIOS A^{1,2} (ATHENS, GREECE)

The Importance of Risk of Falling Assessment alongside the "Fracture Risk", when evaluating patients with bone loss (20+5 min.)

1 Medical School, National and Kapodistrian University of Athens, Greece

2 Hellenic Osteoporosis Foundation, Kifissia, Greece

ZEMKOVA DANIELA^{1,2}, MARIKOVÁ ALENA², HUDAKOVA OLGA², MARIK IVO^{2,3}, (PRAGUE & PILSEN, CZECH REPUBLIC)

Bone density of genetic skeletal disorders – introduction (20+5 min.)

1 Dept. of Paediatrics, University Hospital Motol, Prague, Czech Republic

2 Faculty of Health Care Studies, West Bohemia University, Pilsen, Czech Republic

3 Ambulant Centre for Defects of Locomotor Apparatus I.l.c., Prague, Czech Republic

INVITED LECTURE OF PROFESSOR MILAN BAYER, MD, PHD.

Introduction: OLGA HUDAKOVA, MD, PHD

Moderator: PROFESSOR JOSEF HYANEK, MD, DSC.

Honorary president of the Society for Connective Tissues, Czech Medical Association J.E. Purkynje

BAYER MILAN (PRAGUE, CZECH REPUBLIC)

Pubertal timing and bone health (25+5 min.)

Department of Children and Adolescents, 3rd Faculty of Medicine, Charles University, Hospital Královské Vinohrady, Prague, Czech Republic

16.00–16.30 COFFEE BREAK

Chairmen: ZWIP HANS, MARIK IVO

PROFESSOR MICHAEL BELLEMORE, MD.

Introduction: OLGA HUDAKOVA, MD, PHD

Moderator: PROFESSOR IVO MARIK, MD, PHD.

President of the Society for Connective Tissues, Czech Medical Association J.E. Purkynje

BELLEMORE MICHAEL, MUNNS CRAIG (SYDNEY, AUSTRALIA)

Osteogenesis imperfecta (20+5 min.)

Department of Orthopaedic Surgery, The Children's Hospital at Westmead, Sydney, Australia

ZWIPP HANS (DRESDEN, GERMANY)

Malunited Fractures of the Foot and Ankle in Children – How to correct? (25+5 min.)

Orthopedic and Traumatology Department of the University in Dresden, Germany

17.30 – 18.30 DINNER

18.30 GUIDED TOURS IN KROMERIZ

Archbishop's cellars with wine tasting.

FRIDAY, SEPTEMBER 14, 2018

8.00–8.30 REGISTRATION OF PARTICIPANTS
in the Hotel "OCTÁRNA"

8.30–13.00 **MORNING SESSIONS**

SESSION III: SPINE DISORDERS I: PATHOGENESIS, DIAGNOSIS AND TREATMENT

Chairmen: KARSKI TOMASZ, DUDIN MIKHAIL, MARIK IVO

Lectures dedicated in memory of Milan Roth.

HUDAKOVA OLGA¹, MARIK IVO^{1,2} (PRAGUE & PILSEN, CZECH REPUBLIC)

Memory of Associate Professor Milan Roth, DSc. (10 min.)

1 Ambulant Centre for Defects of Locomotor Apparatus I.I.c., Prague, Czech Republic

2 Faculty of Health Care Studies, West Bohemia University, Pilsen, Czech Republic

VAN LOON PIET JM¹, SOETERBROEK ANDRE M², GROTENHUIS ANDRE H³ (DEVENTER, OOSTERBEEK & NIJMEGEN, NETHERLANDS)

“A short cord can cause scoliosis”: Osteoneural growth relations by Milan Roth (1923–2006) – a concise concept in morphogenesis and a useful scientific base for Orthopedics and Neuroscience. An overview of his legacy in biomedical science (25+5 min.)

1 Orthopedic surgeon, Care to Move, Centre for Orthopedics, Deventer, The Netherlands

2 Chairman Houdingnet (Posture Network Netherlands), Oosterbeek, The Netherlands

3 Professor of neurosurgery, RadboudMC, University of Nijmegen, The Netherlands

DUDIN MIKHAIL GEORGIYEVICH (ST. PETERSBURG, RUSSIA)

Reflections about the perspectives of scoliosology (25+5 min.)

Children's Rehabilitation Center for Orthopedics and Traumatology 'Ogonyok', Saint-Petersburg, Russia

ARSENEV ALEKSEY VALENTINOVICH, DUDIN MIKHAIL GEORGIYEVICH, PETROV SEMEN (ST. PETERSBURG, RUSSIA)

Idiopathic scoliosis treatment or how to 'loose spring' (20+5 min.)

Children's Rehabilitation Center for Orthopedics and Traumatology 'Ogonyok' St. Petersburg, Russia

KARSKI TOMASZ (LUBLIN, POLAND)

Biomechanical etiology of the so-called idiopathic scoliosis. New classification. New therapy. Clinical material based on observation from 34 years (1984–2018) and presentation from 1995 (23 years) (25+5 min.)

Vincent Pol University in Lublin, Poland

10.30–11.00 COFFEE BREAK

SESSION III: SPINE DISORDERS II: PATHOGENESIS, DIAGNOSIS AND TREATMENT

Chairmen: VAN LOON, PIET, REPKO MARTIN, KOLESNICHENKO VERA

VAN LOON PIET JM¹, ERVE VAN RUUD HG¹, THUNNISSEN ERIK BT², GROTENHUIS ANDRE JM³ (DEVENTER, AMSTERDAM & NIJMEGEN, NETHERLANDS)

Growth of the human skeleton, a lifestyle dependant, tension based biomechanical and neurodynamic process. Connected research out of a trail in etiopathogenetic search in spinal deformities and endemic postural changes (20+5 min.)

1 Orthopedic surgeon, Care to Move, Centre for Orthopaedics, Deventer, The Netherlands

2 Pathologist, epidemiologist VUMC, Free University, Amsterdam, The Netherlands

3 Professor of neurosurgery, RadboudMC, University of Nijmegen, The Netherlands

PETROV SEMEN (ST. PETERSBURG, RUSSIA)

What do we know about intervertebral discs? (the short literature review) (15+5 min.)

Children's Rehabilitation Center for Orthopedics and Traumatology 'Ogonyok', St. Petersburg, Russia

NIKITINA ALEXANDRA, KOMANTSEV VLADIMIR, DUDIN MIKHAIL (ST. PETERSBURG, RUSSIA)

Electrophysiological aspects of paraspinal muscle activity in children 9–12 years old without spinal deformity (15+5 min.)

Children's Rehabilitation Center for Orthopedics and Traumatology 'Ogonyok', Saint-Petersburg, Russia

KOLESNICHENKO VERA¹, GOLKA GREGORY², GRESKO IGOR³ (KHARKOV & LVIV UKRAINE)

Structural asymmetry of lumbar vertebrae as a risk factor for the developmental of paravertebral muscle dysfunction (15+5 min.)

1 SI "Sytenko Institute of Spine and Joint Pathology National Academy of Medical Sciences of Ukraine", Kharkov, Ukraine

2 Kharkov National Medical University, Ukraine

3 Lviv National Medical University named after Danila Galitsky, Ukraine

REPKO MARTIN^{1,2}, FILIPOVIC MILAN^{1,2} (BRNO, CZECH REPUBLIC)

Growing scoliotic spine – limits of conservative treatment and indication of surgery (15+5 min.)

1 Orthopaedic department, Faculty Hospital of Masaryk's University Brno

2 Centre for Spinal Surgery, Faculty Hospital Brno

FILIPOVIC MILAN^{1,2}, REPKO MARTIN^{1,2}, HORAK JAN^{1,2}, LEZJAR MILAN^{1,2}, PRYMEK MARTIN^{1,2} (BRNO, CZECH REPUBLIC)

The role of growth guidance systems in surgical treatment of early onset scoliosis (15+5 min.)

1 Orthopaedic department, Faculty Hospital of Masaryk's University Brno

2 Centre for Spinal Surgery, Faculty Hospital Brno

FAMILY PHOTO OF PARTICIPANTS IN THE HOTEL "OCTÁRNA"

13.30–14.30 LUNCH

14.30–18.00 **AFTERNOON SESSIONS**

SESSION IV: DIAGNOSTICS AND COMPREHENSIVE TREATMENT

Chairmen: KARSKI JACEK, KRAWCZYK PETR, MARIK IVO

BELLEMORE MICHAEL (SYDNEY, AUSTRALIA)

Perthes disease, irritable hip and other causes of a painful hip (20+5 min.)

Department of Orthopaedic Surgery, The Children's Hospital at Westmead, Sydney, Australia

KARSKI JACEK, WILCZYŃSKI MICHAŁ, KARSKA KLAUDIA¹, OSTROWSKI JERZY, STAROBRAT GRZEGORZ², LATALSKI MICHAŁ², KAŁAKUCKI JAROSŁAW, KANDZIERSKI GRZEGORZ (LUBLIN, POLAND)

Bowleg deformities in children and adolescents. Various treatment methods (15+5 min.)

Paediatric Orthopaedic and Rehabilitation Department of Medical University of Lublin

1 Paediatric Radiology Department of Medical University of Lublin

2 Paediatric Orthopaedic Department of Medical University of Lublin

KARSKI JACEK, KLAUDIA KARSKA¹, TOMASZ KARSKI² (LUBLIN, POLAND)

Is the way of sitting important at childhood and adolescent age? (15+5 min.)

Paediatric Orthopaedic and Rehabilitation Department of Medical University of Lublin

1 Paediatric Radiology Department of Medical University of Lublin

2 Vincent Pol University in Lublin, Poland

KARSKI TOMASZ¹, KARSKI JACEK², BEATA SLOWINSKA³, BARTOSZ BORYGA³, KARSKI JANUSZ⁴, ŻURAKOWSKI WOJCIECH⁴ (LUBLIN, POLAND)

Physiotherapy correct and incorrect in patients from Sanatorium of Dr Janusz Korczak in Krasnobród in period of 1977–2018 (15+5 min.)

1 Vincent Pol University in Lublin, Poland

2 Medical University in Lublin, Poland

3 Military Hospital in Lublin, Rehabilitation Department

4 Sanatorium under the name of Dr Janusz Korczak in Krasnobród, Poland

16.00–16.30 COFFEE BREAK

Chairmen: KARSKI TOMASZ, SMRCKA VACLAV, MARIK IVO

KARSKI TOMASZ¹, KARSKI JACEK², DOMAGALA MARIAN³, KOWALSKA MAGDALENA³ (LUBLIN, POLAND)

Problems of ankle joint, knee and in some cases of hips caused by rotation distortion in daily activity (15+5 min.)

1 Vincent Pol University in Lublin, Poland

2 Medical University in Lublin, Poland

3 Medical Centrum in Laszczów near to Tomaszów Lubelski

KARSKI JACEK¹, KARSKI TOMASZ², PYRC JAROSŁAW³ (LUBLIN, POLAND)

Knee problems – instability. Causes. Symptoms. Prophylactics (15+5 min.)

1 Medical University in Lublin, Poland

2 Vincent Pol University in Lublin, Poland

3 Medical Department of Technical University in Dresden, Germany

SMRCKA VACLAV^{1,2}, MARIK IVO³, KUŽELKA VITĚZSLAV⁴, DICK DAVID², BEJVOVÁ JARMILA² (PRAGUE, CZECH REPUBLIC)

Surgery of metacarpal aplasia (15+5 min.)

1 Institute for History of Medicine and Foreign Languages & Department of Plastic Surgery, 1st Faculty of Medicine, Charles University in Prague, Bulovka Hospital, Czech Republic

2 ESME I.l.c., Prague, Czech Republic

3 Centre for Defects of locomotor apparatus I.l.c., Prague, Czech Republic

4 Anthropological Department of National Museum, Prague, Czech Republic

SMRČKA VACLAV^{1,2}, RÁSTOČNÝ ŠTEFAN², MAREK KAREL², DICK DAVID², BEJVOVÁ JARMILA² (PRAGUE, CZECH REPUBLIC)

Dupuytren disease in the Czech population in the 20th century (15+5 min.)

1 Institute for History of Medicine and Foreign Languages & Department of Plastic Surgery, 1st Faculty of Medicine, Charles University in Prague, Bulovka Hospital, Czech Republic

2 ESME I.l.c., Prague, Czech Republic

19.00 GALA DINNER WITH FOLKLORE MUSIC

SATURDAY, SEPTEMBER 15, 2018

8.30–9.00 REGISTRATION OF PARTICIPANTS
in the Hotel "OCTÁRNA"

9.00–13.00 **MORNING SESSIONS**

SESSION V: DISORDERS OF GROWING SKELETON – ORTHOPAEDIC ANTHROPOLOGY – PATHOBIOMECHANICS – ORTHOTICS AND PROSTHETICS – VARIA

Chairmen: ZEMKOVA DANIELA, BELLEMORE MICHAEL, MARIK IVO

PETRASOVA SARKA¹, MORVOVA ZUZANA^{1,4}, ZEMKOVA DANIELA^{1,2}, MARIK IVO^{1,3} (PRAGUE & PILSEN, CZECH REPUBLIC)

Characteristics of the tibiofemoral angle, rearfoot angle and plantar arch in healthy children aged 6 to 15 years (20+5 min.)

1 Ambulant Centre for Defects of Locomotor Apparatus I.L.c., Prague, Czech Republic

2 Dept. of Paediatrics, University Hospital Motol, Prague, Czech Republic

3 Faculty of Health Care Studies, West Bohemia University, Pilsen, Czech Republic

4 Faculty of Science, Department of anthropology and human genetics, Charles University, Prague

ZEMKOVA DANIELA^{1,3}, ANYZOVA TEREZA^{3,4}, MARIKOVÁ ALENA², MARIK IVO^{2,3} (PRAGUE & PILSEN, CZECH REPUBLIC)

Growth data of Czech achondroplasia patients (20+5 min.)

1 Dept. of Paediatrics, University Hospital Motol, Prague, Czech Republic

2 Faculty of Health Care Studies, West Bohemia University, Pilsen, Czech Republic

3 Ambulant Centre for Defects of Locomotor Apparatus I.L.c., Prague, Czech Republic

4 Faculty of Science, Department of anthropology and human genetics, Charles University, Prague

SHPILEUSKI IGOR, SAKALOUSKI ALEH (MINSK, BELARUS)

The peculiarities of surgical treatment of benign bone neoplasms in growing patients (20+5 min.)

Belarusian Research Centre of Traumatology and Orthopedics, Minsk, Belarus

MARIK IVO^{1,2,4}, HUDAKOVÁ OLGA², MARIKOVA ALENA², ZEMKOVA DANIELA^{2,3}, MYSLIVEC RADEK^{2,4}, KOZLOWSKI KAZIMIERZ⁵ (PRAGUE & PILSEN, CZECH REPUBLIC & SYDNEY, AUSTRALIA)

Subtypes of enchondromatosis: case reports (20+5 min.)

1 Faculty of Health Care Studies, West Bohemia University, Pilsen, Czech Republic

2 Ambulant Centre for Defects of Locomotor Apparatus I.L.c., Prague, Czech Republic

3 Dept. of Paediatrics, University Hospital Motol, Prague, Czech Republic

4 Orthopaedic and Traumatology Department, Hospital Pribram, Czech Republic

5 Department of Medical Imaging, Children's Hospital at Westmead, Sydney, Australia

PANKRATOVA GALINA¹, DUDIN MIKHAIL GEORGIEVIC² (RYAZAN & ST. PETERSBURG, RUSSIA)

Anatomical and topographical peculiarities of urine flowing system organs among the children with idiopathic scoliosis (20+5 min.)

1 Orthopedics clinic, Ryazan, Russia

2 Children's Rehabilitation Center of Orthopedics and Traumatology "Ogonek", Saint-Petersburg, Russia

11.00–11.30 COFFEE BREAK

Chairmen: PARIZKOVA JANA, KRAWCZYK PETR, MARIK IVO

BELLEMORE MICHAEL (SYDNEY, AUSTRALIA)

Deformity correction and limb lengthening (15+5 min.)

Department of Orthopaedic Surgery, The Children's Hospital at Westmead, Sydney, Australia

MUSIL MICHAL (VIENNA, AUSTRIA)

Indication-related strategy for orthotic aids applied to upper extremities affected by a neuromuscular disease (15+5 min.)

Pohlig Austria GmbH&CoKG, Vienna, Austria

SNYTR JAN (ZRUČ-SENEC, CZECH REPUBLIC)

Comparison of GRAFO and reaction AFO orthoses in patient treatment (15+5 min.)

Ottobock CZ I.l.c., Zruč-Senec, Czech Republic

POPOVICOVA VERA, RYBA LUKAS, RYBOVA STEPANKA (PILSNER, CZECH REPUBLIC)

Monitoring the effect of fascial stretching on the range of motion in hip joint – a pilot study (15+5 min.)

Faculty of Health Care Studies, West Bohemia University, Pilsner, Czech Republic

PARIZKOVA JANA (PRAGUE, CZECH REPUBLIC)

Predispositions for adiposity, motor abilities and musculoskeletal development (15+5 min.)

Obesity Management Centre, Institute of Endocrinology, Prague Czech Republic

BLAHA PAVEL (PRAGUE, CZECH REPUBLIC)

Anthropological surveys in Czech Republic (Czechoslovakia) (15+5 min.)

Dept. of Biomedical Sciencis College of Physical Education and Sport PALESTRA

13.30–14.30 LUNCH

14.30–16.00 **AFTERNOON SESSIONS**

SESSION VI: E- POSTERS: SPINE DISORDERS III: PATHOGENESIS, DIAGNOSIS AND TREATMENT

Chairmen: KARSKI JACEK, DUDIN MIKHAIL, MARIK IVO

Presenters of E-posters: DUDIN MIKHAIL GEORGIEVIC, PETROV SEMEN, NIKITINA ALEXANDRA, PANKRATOVA GALINA

DUDIN MIKHAIL¹, POPOV IGOR², BALOSHIN YURIY², LISITSA NIKITA², BOBER STEPAN¹ (St. PETERSBURG, RUSSIA)

Characteristics of linear sizes of vertebral bodies and intervertebral disks in children in the beginning of puberty (7+3 min.)

1 Children's Rehabilitation Center for Orthopedics and Traumatology 'Ogonyok', St. Petersburg, Russia

2 St. Petersburg National Research University of Information Technologies, Mechanics and Optics (ITMO University).

BAZANOVA MARIA, DUDIN MIKHAIL, KOLOSKOVA LIDIA (St. PETERSBURG, RUSSIA)

The value of vitamin D receptor gene polymorphism (VDR) by BSMI-B/b marker as a participant of adolescent idiopathic scoliosis (AIS) pathogenesis in children (7+3 min.)

Children's Rehabilitation Center for Orthopedics and Traumatology 'Ogonyok' & OOO "Medlab" SPb, Saint-Petersburg, Russia

RYBKA DINA OLGOVNA¹, DUDIN MIKHAIL¹, SHAROVA LIDIA² (St. PETERSBURG, RUSSIA)

Ultrasonic characteristics of paravertebral muscles in children with idiopathic scoliosis and without deformity of the spine (7+3 min.)

1 Children's Rehabilitation Center of Orthopaedics and Traumatology «Ogonyok»,

2 North-Western State Medical University named after I.I. Mechnikov, Sankt-Petersburg, Russia

PANKRATOVA GALINA¹, DUDIN MIKHAIL² (RYAZAN & St. PETERSBURG, RUSSIA)

Anatomical and topographical peculiarities of urine flowing system organs among the children with idiopathic scoliosis (5+2 min.)

1 Orthopedics clinic, Ryazan, Russia

2 Children's Rehabilitation Center of Orthopedics and Traumatology "Ogonek", Saint-Petersburg, Russia

VASILEVICH SERGEJ¹, ARSENIYEV ALEKSEY¹, DUDIN MIKHAIL¹, SUKHOV TIMOFEY² (St. PETERSBURG, RUSSIA)

Experience diagnostics using the modern mobile technology in practice of physician orthopedist (7+3 min.)

1 Children's Rehabilitation Center for Orthopedics and Traumatology 'Ogonyok'

2 Baltic State Technical University 'VOENMECH' named after D. F. Ustinov, Saint-Petersburg, Russia

VASILEVICH SERGEJ¹, ARSENIYEV ALEKSEY¹, DUDIN MIKHAIL¹, KHOMUTOV VLADIMIR², KOMLEV ALEKSEY² (St. PETERSBURG, RUSSIA)

Prospects the possible applications of the electret effects of the bones in pediatric orthopedics- preliminary report (7+3 min.)

1 Children's Rehabilitation Center for Orthopedics and Traumatology 'Ogonyok'

2 St. Petersburg Electrotechnical University 'LETI', St. Petersburg, Russia

AFANASYEVA OLGA, BOBER STĚPAN, GYDUC TATIANA (ST. PETERSBURG, RUSSIA)

Psychological peculiarities of adolescents with scoliosis of various gravity degree (5+2 min.)

Children's Rehabilitation Center for Orthopedics and Traumatology 'Ogonyok', St. Petersburg, Russia.

ZALTSMAN POLINA (ST. PETERSBURG, RUSSIA)

The advantage of using a differential acupuncture technique in combination with traditional rehabilitation methods for stopping the pain syndrome of vertebrogenic genesis in children and adolescents (5+2 min.)

Children's Rehabilitation Center for Orthopaedics and Traumatology «Ogonyok», St. Petersburg, Russia

CERNY PAVEL^{1,2,3}, CERNY MICHAL³, DRNKOVA JANA³, STOLINSKI LUKASZ^{4,5,6}, CZAPROWSKI DARIUSZ^{7,8}, KOTWICKI TOMASZ⁴, MARIK IVO^{1,9} (PILSEN & PRAGUE & POZNAN & SKIERNIEWICE & OLSZTYN, CZECH REPUBLIC & POLAND)

Measurement of spinal and postural deformities from radiographs or photographs using dedicated software for computers and smartphones (7+3 min.)

1 Faculty of Health Studies, University of West Bohemia, Pilsner, Czech Republic

2 Faculty of Physical Education and Sport, Charles University, Prague, Czech Republic

3 ORTOTIKA I.I.c., the complex of the Faculty Hospital at Motol, Prague, Czech Republic

4 Department of Spine Disorders and Pediatric Orthopedics, University of Medical Sciences, Poznan, Poland

5 Rehasport Clinic, Poznan, Poland

6 SPINE DISORDERS CENTER, Rehasport Clinic Licensed Rehabilitation Center, Skierniewice, Poland

7 Department of Physiotherapy, Józef Rusiecki University College, Olsztyn, Poland

8 Center of Body Posture, Olsztyn, Poland

9 Centre for Defects of Locomotor Apparatus I.I.c., Prague, Czech Republic

IVO MARIK & PETR KRAWCZYK, TOMASZ KARSKI & MIKHAIL DUDIN

**Closing of the Symposium
and planning The 21st Prague-Lublin-Sydney-St. Petersburg Symposium**

FAMILY PHOTO OF PARTICIPANTS IN THE HOTEL "OCTÁRNA"

16.00 TOUR OF THE CASTLE AND GARDENS

18.00 FAREWELL DINNER

SUNDAY, SEPTEMBER 16, 2018

9.00 CELEBRATORY BREAKFAST IN THE HOTEL "OCTÁRNA"

GOOD BYE!

NOTES FOR ALL PARTICIPANTS

Lectures and text slides will be presented in English.

Time of the individual lectures and for discussion of each lecture is indicated in round brackets.

A list of lectures/posters and chairmen of sessions can be changed!

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There is a possibility to pay during registration, too!

Hotel accommodation is paid individually.

Abstracts of lectures will be published in the Supplement 2 of the journal Locomotor System 25/2018 (electronic version, ISSN 2336-4777, <http://www.pojivo.cz/cz/pohybove-ustroji/>)

Participants will receive the Programme & Certificate of Attendance & Symposium materials.

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Social Evening at the wine Archbishop's cellars with wine tasting.

More recent information about the Symposium will be available on the websites: www.pojivo.cz & www.ortoprotetika.cz

Do not hesitate address your questions to International Organizers of the Symposium:

Professor Ivo Marik, MD, PhD & Petr Krawczyk, MD & RNDr. Martin Braun, PhD
e-mails: ambul_centrum@volny.cz & krawczyk@proteorc.cz & braun@irsm.cas.cz

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E-mail: ogonek@zdrav.spb.ru & stivamat@rambler.ru

Notes:

A list of other hotels and websites where it is possible to provide accommodation:

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Transport to Kromeriz

We ask the foreign participants to notify the organizers of the number of people and the way of transport to the symposium in order to facilitate travel no later than 14 days before the beginning of the symposium.

Transport from Prague or Ostrava (airport) to Kromeriz

Foreign participants of the symposium will report the date and time of the arrival to the airport to Prague or Ostrava no later than 14 days before the symposium begins. The organizers of the symposium will then arrange a transport from the airport to the railway station and transport to the accommodation in Kromeriz. The detailed shipping plan will be sent no later than 1 week before the symposium begins.



MEMORY TO ASSOC. PROF. MILAN ROTH, MD, DSC. (1923–2006)

Assoc. Prof. Milan Roth, MD, DSc. was born in October 6, 1923 in the village Lelekovice. He graduated at grammar school in Brno. From 1942 he attended the Institute of Languages and studied English and German language. Because of the Second World War he was totally put (he had to work) in the factory Klöckner in Kuřim from July 1943 since the end of the War. He started to study medicine at Masaryk Medical Faculty in Brno in 1945. After graduation he worked at the surgery department in Bruntal for a short time before he had to initiate the military basic service. He was sent to radiological department of Military Hospital in Pilsen. His whole life love to radiology he started just there. After termination of military service obligation, he started to work at Radiological Institute in Olomouc. He was admitted to Radiological Department at The Faculty Hospital of Saint Anna in Brno in two years. He defended his PhD dissertation successfully in 1964. Nevertheless, his habilitation procedure was stopped from the political reasons. The title Associated Professor he reached after the Velvet Revolution in 1989 and the doctorate dissertation he defended in 1991. When he was retired, he changed his work place to the Radiological Clinic of Medical Faculty of Masaryk University in Brno – Bohunice. He definitively ended employment in 1995.

Roth's research interests had two directions – neuro-radiological (he was one of founders of European Neuroradiological Society) and orthopaedic – radiological. This unique professional combination with the interest of zoology and phylogenetics led him to the macro-projection of development and it's macro-relation of neuronal and bone tissue, which are commonly treated, investigated and examined completely separately.

The term "osteo-neural macro-synthesis" explains generalization of cerebral-cranial development relation to „axial organ“ – spinal cord and vertebral column and extremities – peripheral

nerves and long bones of extremities. This approach shows substantiated and experimentally based interpretation still mysterious, above all, "dysplastic" disease states of the skeleton.

Roth's experiences were collected in many papers with various reactions. Most of publications were in English. The overview of his publications was presented in the *Locomotor System Journal* (Pohybové ústrojí, 5, 1998, č. 1–2, s. 93–95) on the occasion of professor's 75th anniversary. His fundamental cognition was published in monography: "Neurovertebral and Osteoneural Growth Relations" (Brno, J.E.Purkyně University Press, 1985, 201 pp.)

There is a list of some of his latest publications:

- ROTH M. Skeletal teratogenesis. *Intermezzo Riv Neuroradiol* 10, 1997, pp. 59–62.
- ROTH M. Cancerogenesis. *Intermezzo Riv Neuroradiol* 10, 1997, pp. 337–40.
- ROTH M. Morphology and development of the spine: Plea for a doubt. *Intermezzo Riv Neuroradiol* 11, 1998, pp. 313–20.

He was a member of the Editorial board of the journal *Locomotor System* from 1995. He published in this journal four very interesting experimental papers:

- ROTH M. Role of neural growth in the pathomechanism of skeletal dysplasias: an experimental study. *Locomotor System*, 2, 1995, No. 3, pp. 85–111.
- ROTH M. Macroneurotrophic features of growth hormone effects upon the spine and hip. *Locomotor System*, 3, 1996, No. 2, pp. 72–108.
- ROTH M. Rheumatoid Deformities of the Skeleton: Animal Models and Neuroadaptive Pathomechanism. *Locomotor System*, 5, 1998, No. 1–2, pp. 40–49.
- ROTH M. Neuroadaptive Pathomechanism of Bone Dysplasias (in Czech). *Locomotor System*, 5, 1998, No. 3–4, pp. 127–132.

The supporters of „macro-neuro-trophic“ origin of systemic and extremities defects of locomotor system argue for the theory with the fact that bone tissue has got no nerves inside. They confess the disorders of growth of bones or genesis of osteoporosis as an impact of „damaged neuro-trophics“ (for example shortening of one lower extremity after the injury interruption of nervus ischiadicus during the growing period or Sudeck algoneurodystrophy syndrome after the fracture or prolongation of the shank).

If we consider Donaldson's "nervous skeleton" (1937) to be plausible, that is to say a felt, ubiquitous net of the peripheral nerves that diffuses through the body and which is subperiostally and endostally, then it is obvious that the limb skeleton is in the most intimate relation to the nerves, more intimate than it is between the brain and its neurocranial envelope. The skeleton is literally "embedded" into the nerve skeleton and is actually a "cast" of the cavity located in the nerve tissue.

It is evident that in particular longitudinal bone growth is not possible without an adequate increase of the said surrounding skeleton and nervous stems. Thus, if the skeleton is unable to grow, then the bone "cast" can't grow.

It should be borne in mind that the neural skeleton and the peripheral nervous system grow with a long or extensive type of growth that is energy-metabolically more demanding and therefore also more vulnerable to general teratogenic environmental factors than the commonly known cell type of growth.

Roth still maintained his enthusiastic workflow and interest in the discipline even in a gradually deteriorating state of health. He has not published any professional publications, although he has always been firmly convinced of the correctness of his opinions, hypotheses, and experimental evidence. Unfortunately, he did not finish the monographic work he had arranged in Italy.

At the end of his life, the Dutch orthopedist – doctor Piet van Loon, an admirer of his work, hoped to meet together, but the health of Roth did not allow it anymore. He died on 2nd April 2006 (in his 83 years).

In memory on Milan Roth in 2006 Professor Miroslav Kolář, MD, DSc. and Assoc. Professor Ivo Marik, MD, PhD wrote: Advances in molecular genetics, recognition of the significance of other hox genes (homeobox is a nucleotide sequence of 180 nucleotides that is part of four genes localized to chromosomes 2, 7, 12 and 17), hedgehog protein in embryo, development and its disorders, resulting in developmental abnormalities and malformations, the study of new cell adhesion molecules and receptors will certainly contribute to a more precise explanation of the etiopathogenesis of bone dysplasias, congenital limb and combined defects that we see as experiments of nature.

We are convinced that the life work of Roth will carry out further studies to test his entirely original experiments and hypotheses in clinical practice.

Conclusion

Today, scientific works of a few clinical experts proved at clinical cases that the results of experimental work of Milan Roth explains pathogenesis of some skeletal deformities such as idiopathic scoliosis, etc. Unfortunately, Milan Roth was not understood in the ninetieth years of the 20th century. In the session III of the anniversary The 20th Prague-Lublin-Sydney-St. Petersburg Symposium that is dedicated in memory of Milan Roth, we would like to draw attention to his experimental work which explains “macro-neuro-trophic” origin of some systemic and extremities defects of locomotor system.

Professor Ivo Marik, MD, PhD

Olga Hudakova, MD, PhD

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