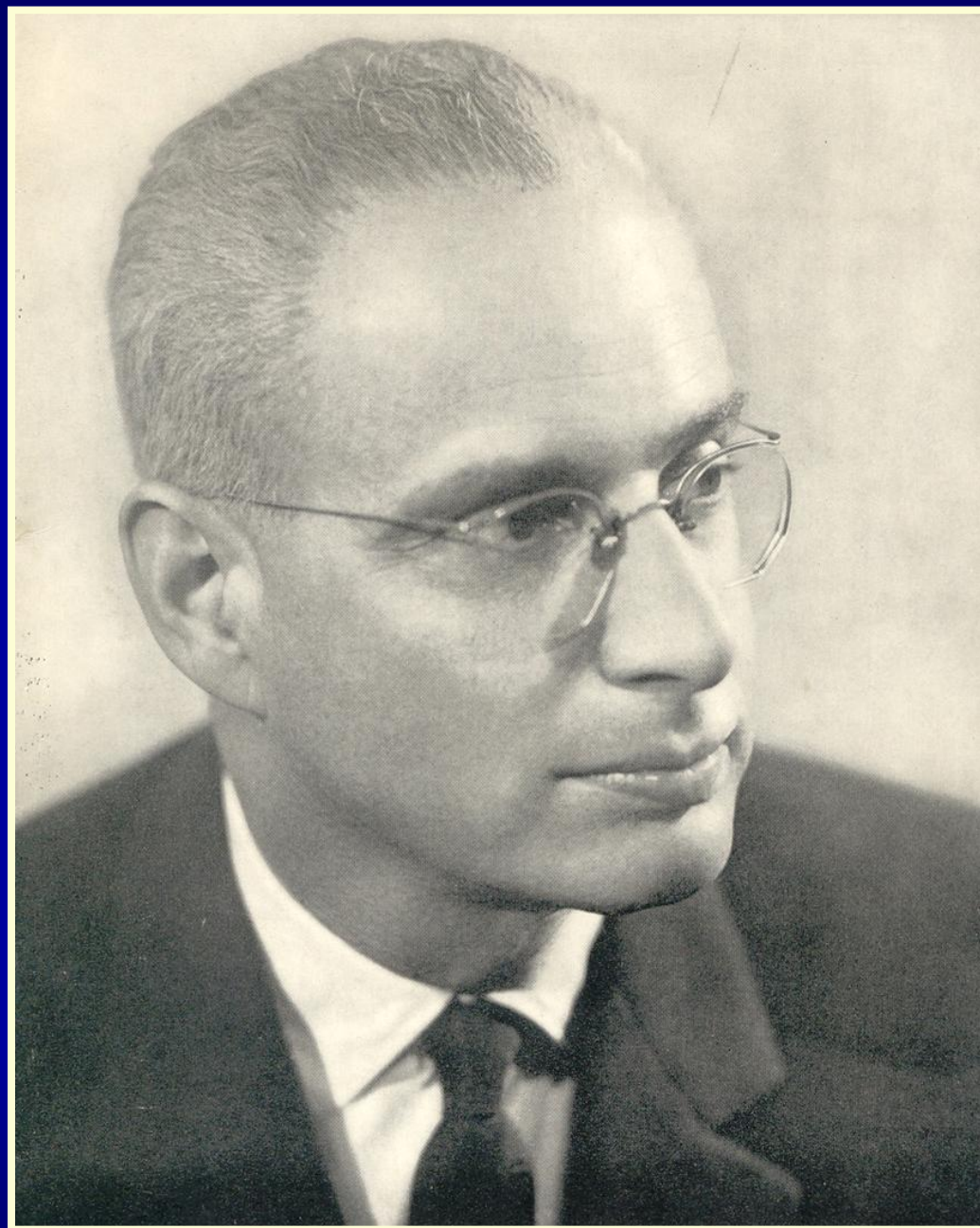


Contribution of Jan Brod to nephrology

Ivan Rychlík

3rd Faculty of Medicine
Charles University
Prague





Jan Brod (1912 – 1985)

Jan Brod, M.D., D.Sc. Professor of Medicine of Charles University

Reasons why to remember him:

- undoubtedly one of the most important and leading personalities of the Czechoslovak medicine and nephrology of the 20th century
- an eminent clinician, teacher and scientist
- one of the founders of academic nephrology in post-war Europe
- in particular, he pioneered the pathophysiological approach to kidney and heart diseases and hypertension

Jan Brod – periods of life

1/ Young age, 1912-1938

2/ The World War II and Paul Wood, 1939-1945

3/ Prague:

- 1st Department of Medicine, 1945-1951
- Institute for the Disorder of Circulation,
1951-1968

4/ Germany:

- Hannover, 1969 – 1985

Young age, 1912-1938

- born in May 19, 1912, in Nový Jičín, North Moravia, as the son of a Jewish business manager
- 1937 graduated *cum eminentia* at the Faculty Medicine, Charles University, Prague
- unpaid house officer in the 1st Dpt Medicine in the General Faculty Hospital in Prague.
- 1937 left for Vienna, 6 months in Dpt Internal Medicine led by Professor Hans Eppinger (1879-1946). He studied the methods of creatinine clearance, which had previously been introduced to practice by Professor Hans Popper (1903-1988), a Viennese of the Czech origin
- Popper was considered the founder of modern hepatology, but in the 1930s he was more interested in renal physiology, particularly in the electrolyte handling. These circumstances initiated Brod's interest in nephrology

Čas. Lék. Čes. 1866 - 1945

Selected Papers Pertaining to Nephrology

- | | |
|--------------------------------|---|
| E. Meixner (1880) | - occurrence of protein peptones in urine |
| J. Thomayer (1882) | - significance of proteinuria and symptomatology of chronic nephritis |
| J. Hlava (1885) | - anatomical classification of renal inflammation |
| (1895) | - Bright's disease |
| F. Mareš (1887) | - excretion of nitrogen compounds |
| J. Thomayer (1891) | - different topics related to nephrology |
| J. Pelnář (1904) | - orthostatic albuminuria |
| V. Laufberger (1923) | - on renal threshold of several urinary substances |
| A. Vančura (since 1928) | - blood pressure and the kidney |

The World War II and Paul Wood

- 1940 – military training in Lemington Spa
- „103rd field hospital“, under the leadership of Paul Wood (1907-1962), an excellent clinician from Hammersmith Hospital, London, later one of the world's outstanding cardiologists.
- trip to North Africa, demobilized in South Italy in 10-1945, captain of British Army
- return to the 1st Dpt.Med.

1st Dept.Med., 1945-1951

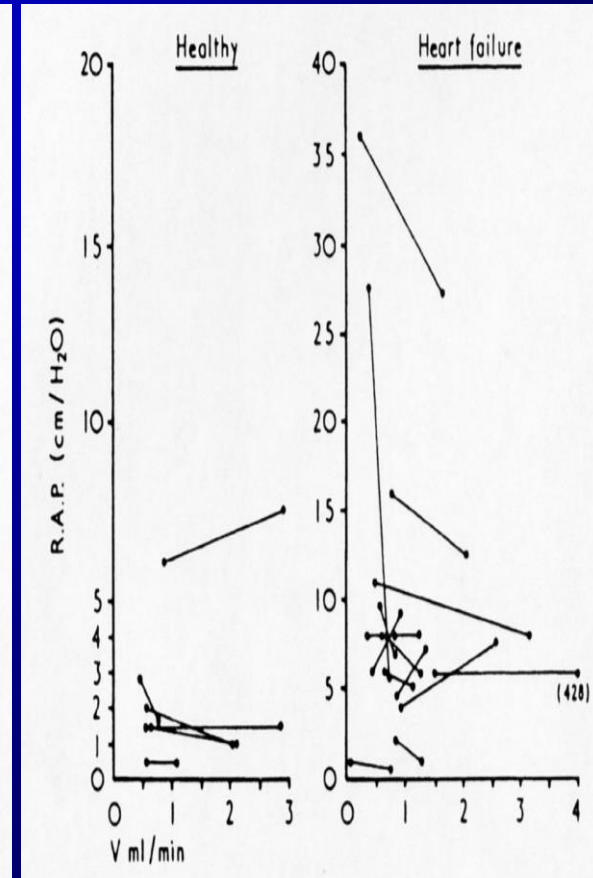
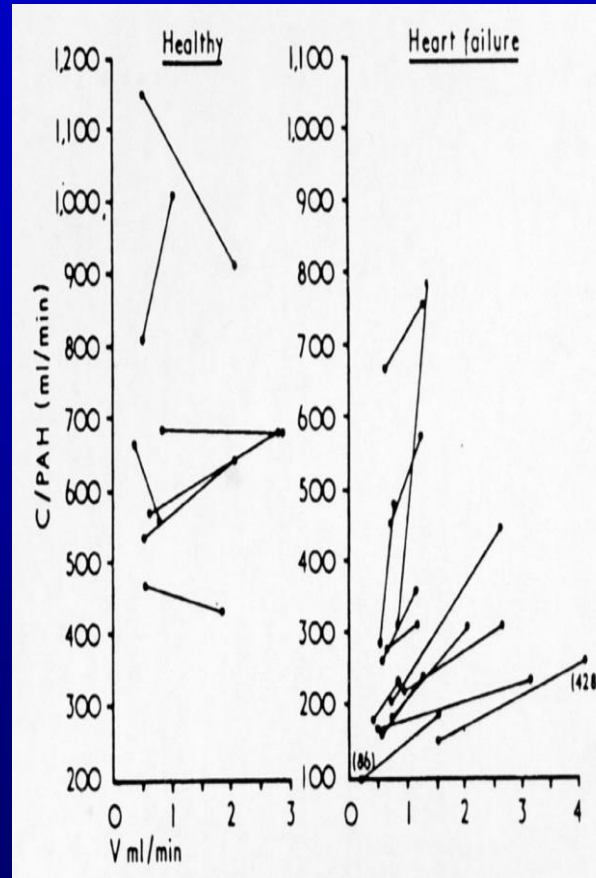
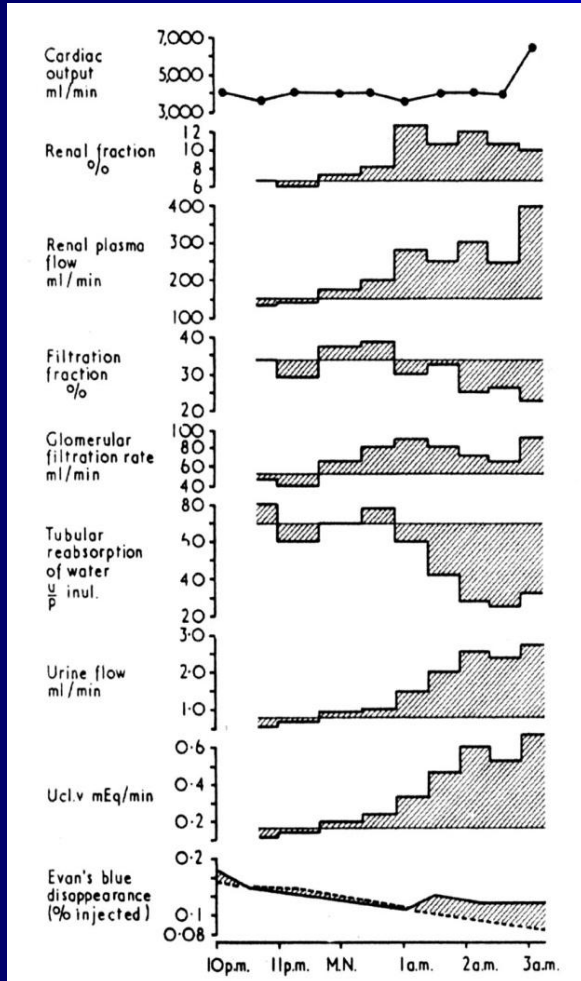
- 1946 - fellowship at Professor G.W.Pickering (1904-1980) in London, research of hypertension
- 1946 - fellowship of Rockefeller foundation, New York, Dr. Homer Smith (1895-1962), founder of modern kidney physiology. He discovered inulin and his experiments on the kidney in the 1930s proved that it operated according to physical principles, both as a filter and a secretory organ.
- 1949 – Associate Professor of pathology and therapy of internal diseases.

Scientific work up to 1951

- co-workers: Z.Fejfar, Kořátko, Kotanová, Bartošová
- demonstrated by extensive clinical investigations that increased blood flow to the kidneys preceded the nocturnal increased urine output and sodium chloride excretion of patients with heart failure.
- the changes in urine output did not depend on pressure changes in the right atrium
- **the first demonstration the important role of the kidney in the formation of edema in chronic heart insufficiency**
 - Brod J, Fejfar Z. The origin of oedema in heart failure. Q J Med. 1950;19:187-221.
 - Fejfar Z, Brod J. The excretion of chlorides in patients in heart failure. Q J Med. 1950;19:221-239.
- **further activities:**
 - clearance of creatinine, inulin, PAH
 - low protein diet in acute PSGN
 - cytostatic drug TS 160 in GN (imunosuppression)

Heart failure and renal haemodynamics

Brod J, Fejfar Z. The origin of oedema in heart failure. Q J Med. 1950;19:187-221



Diurnal variation in renal perfusion and urinary output in heart failure

Photometer, 1945, made by Rubicon Co. donated by the American Relief for Czechoslovakia



Jan Brod and ÚCHOK

(Institute of Disorders of Circulation, Krč, Prague)

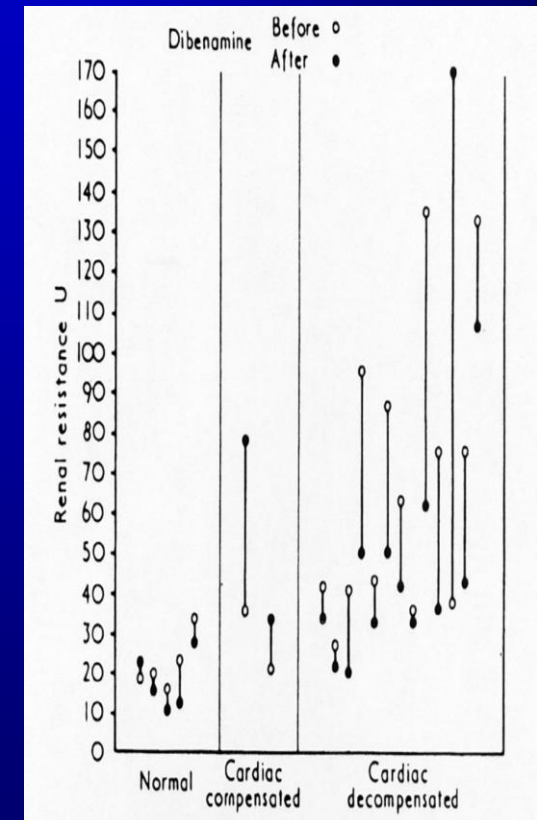
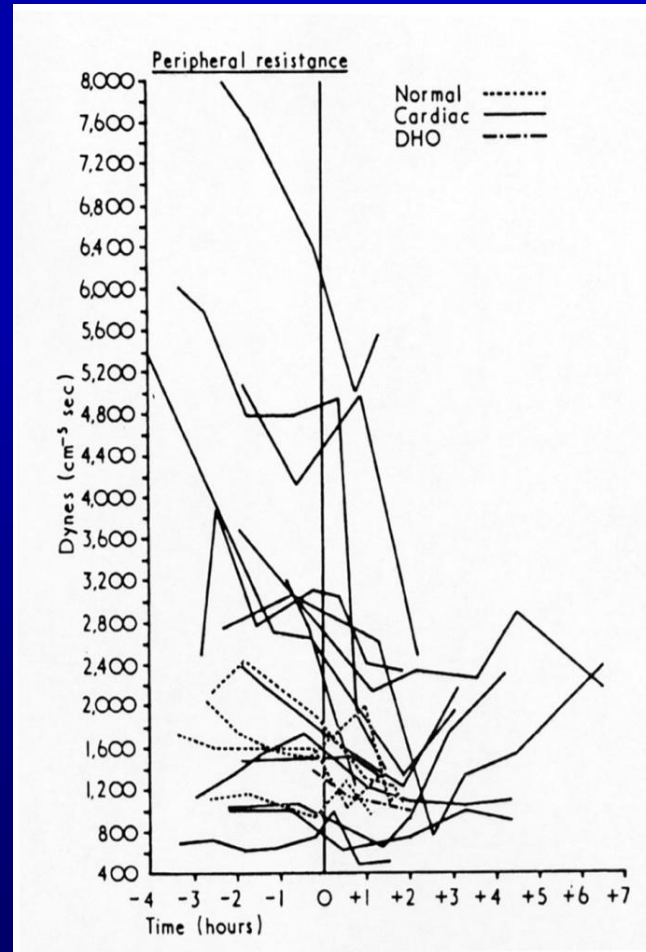
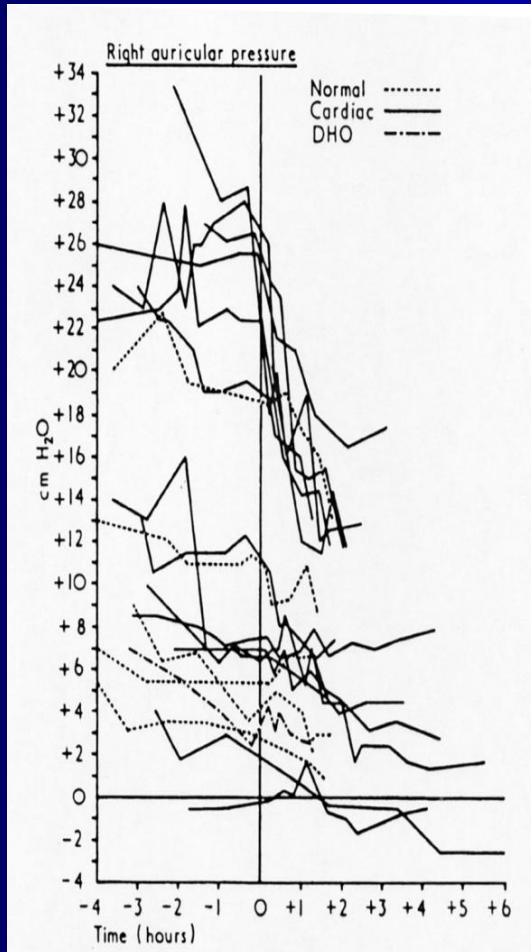
- 1951 vice director to Prof. Klement Weber
- 1961-1968 the head
- established:
 - department of cardiology and nephrology with 80 beds,
 - specialized outpatients departments
 - X-ray department, ECG laboratory
 - clinical and experimental scientific and research laboratories
- new pathophysiological approach to cardiovascular diseases
- studied diseases in clinical practice, but in experiments as well
- scientific and research groups:
 - arterial hypertension and renal diseases (Jan Brod, Jiří Jirka)
 - coronary heart disease (Vilém Ganz)
 - pathogenesis of arteriosclerosis (Tibor Zemplényi)
 - higher nervous activity in relationship to blood circulation (Valter Ehrlich)
 - disorders of heart regulation (Zdeněk Fejfar)
 - disorders of water and electrolyte metabolism
 - diseases of peripheral arteries (I. Přerovský, J. Linhart)

Institute of Disorders of Circulation, Prague

- established clinico-pathological conferences
- organized seminars, symposia and postgraduate courses
- 1963 full professor of medicine
- this period was probably the climactic point of his professional career and many extraordinary studies were carried out in the field of hypertension, kidney diseases, atherosclerosis, heart and lung circulation, many of them being quoted till now

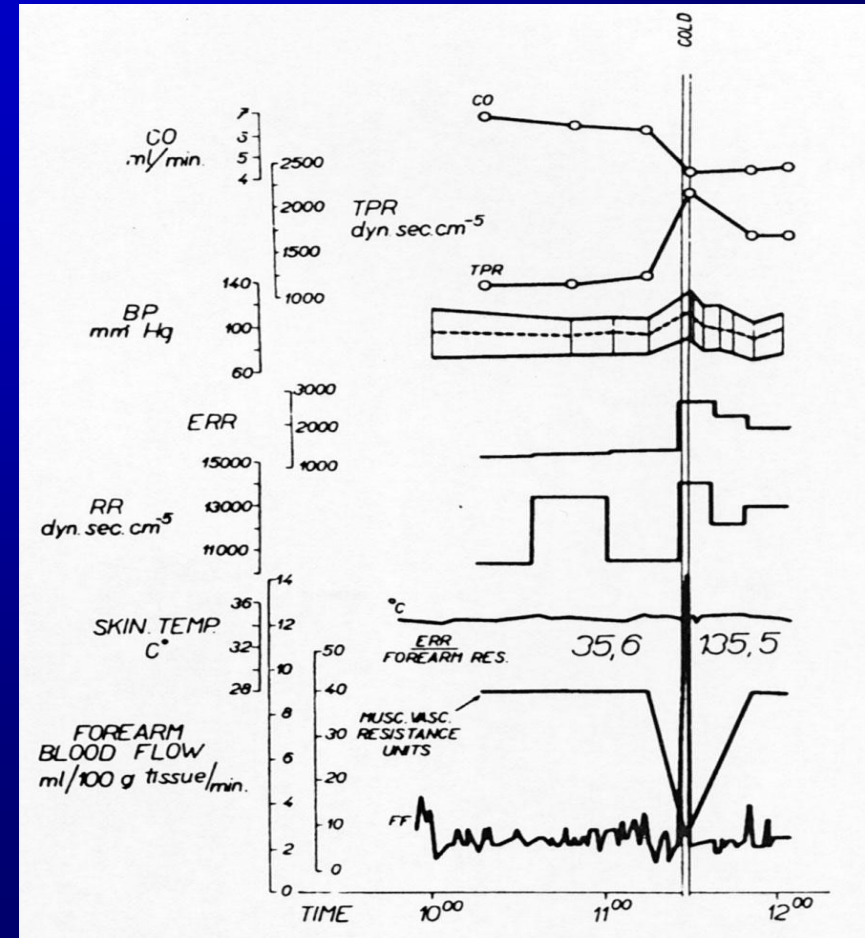
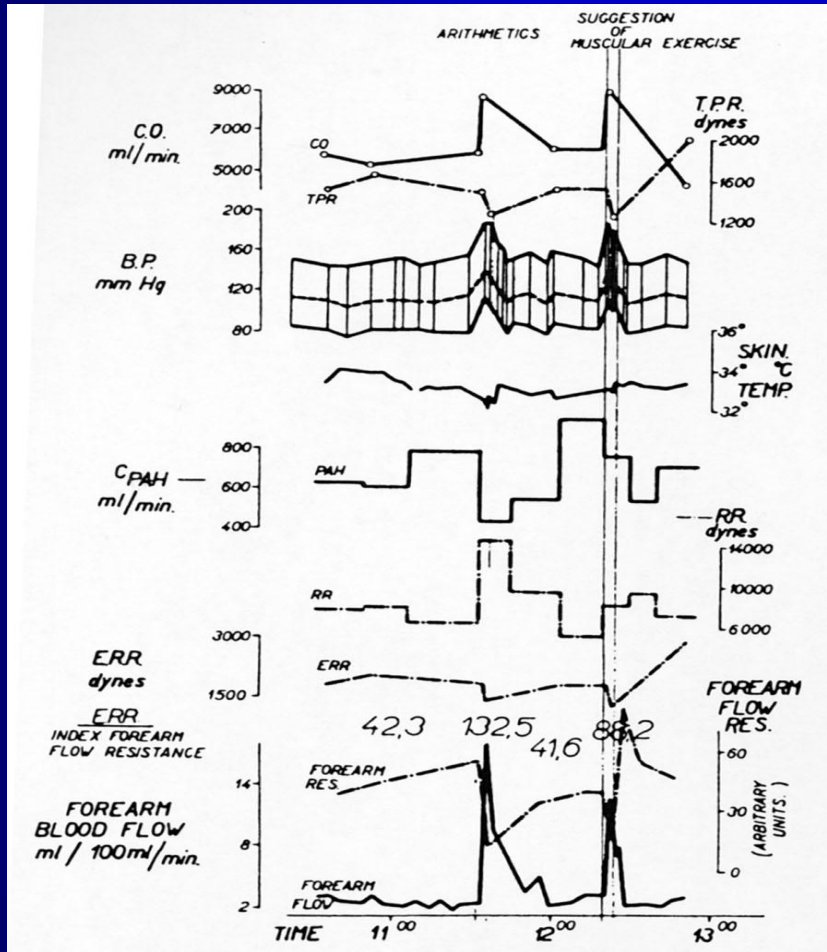
Adrenergic blockade in heart failure and renal haemodynamics

Brod et al., Acta Medica Scandinavica, 1954, 148: 273



Acute haemodynamic response to mental stress and cold water immersion in healthy subjects

Brod et al., Clin. Sci., 1959, 18: 269



Clinical Problems

Pathogenesis of Cardiac Oedema*

JAN BROD

British Medical Journal, 1972, 1, 222-228

Brod was interested mainly in the pathogenesis of hypertension and renal haemodynamics in heart failure

Further topics:

published more than 200 scientific articles and two major monographs

- use the creatinine clearance in routine practice
- acute and chronic GN
- introduced renal biopsy (open 1957, percutaneous 1960)
- chronic interstitial nephritis → different aetiological factors, particularly infection, reflux and analgesic abuse

JAN BROD

LEDVINY

FYSIOLOGIE,
KLINICKÁ
FYSIOLOGIE,
KLINIKA



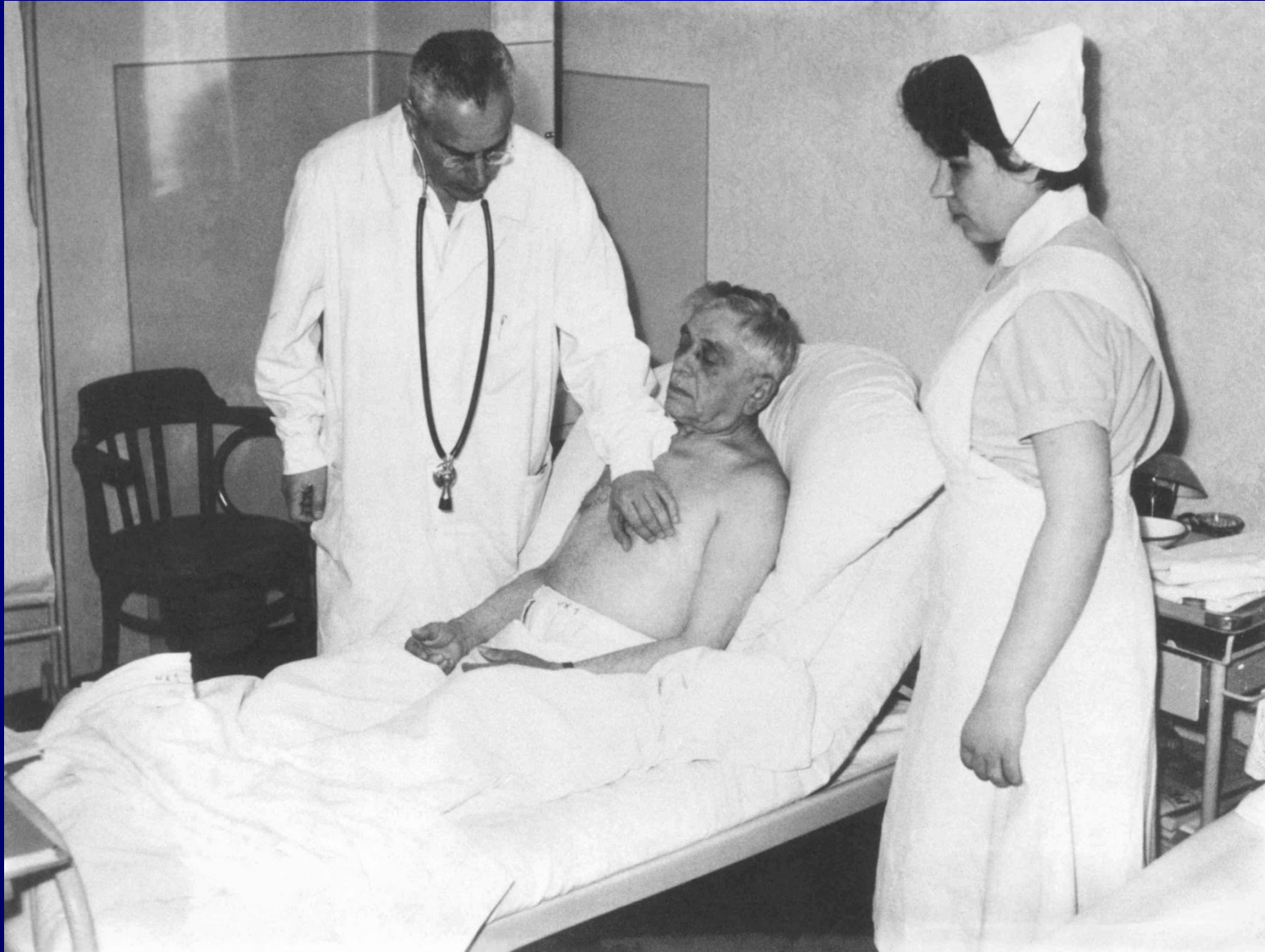
Monographs:

Brod J. The kidney: physiology, clinical physiology, clinic
Prague: State health publishing house, 1st ed.; 1962

Brod J. Die Niere.
Berlin: Volk und Gesundheit; 1984.

Brod J. The kidney.
London: Butterworth, 1st ed.; 1973.

Visit in the ward – ÚCHOK, Krč



After professor's visit meeting



1. Jan Brod
2. Jiří Jirka
3. Z.Hejl
4. J.H.Cort
5. E.Kotanová
6. U.Brodová

Co-workers of Jan Brod

4



1. Jan Brod
2. J.Fencel
3. J.H.Cort
4. Jiří Jirka
5. Vilém Ganz
6. M.Ulrych
7. Z.Hejl
8. V.Prát

Measurement of Blood Flow in the Femoral Artery in Man at Rest and during Exercise by Local Thermodilution

By V. GANZ, M.D., A. HLAVOVÁ, M.D., A. FRONĚK, M.D., J. LINHART, M.D.,
AND I. PŘEROVSKÝ, M.D.

Circulation, Volume XXX, July 1964

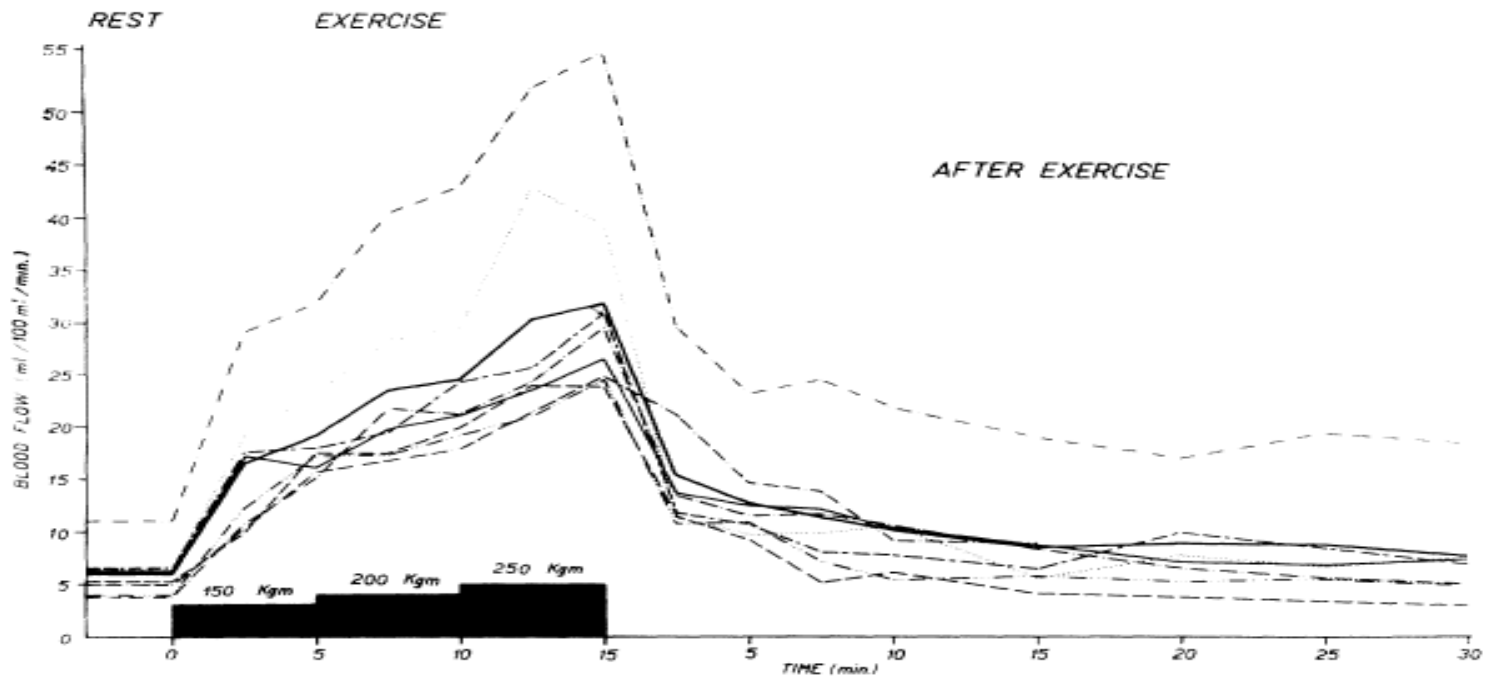


Figure 4

Flow changes in the femoral artery calculated for 100 ml. of leg volume per minute during and after exercise.

Froněk and Ganz developed measurement of cardiac output using thermodilution (Circ. Res., 1960). In LA Ganz further developed the Swan-Ganz catheter

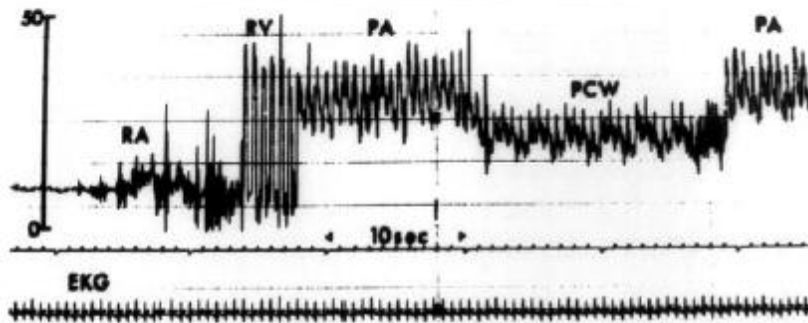
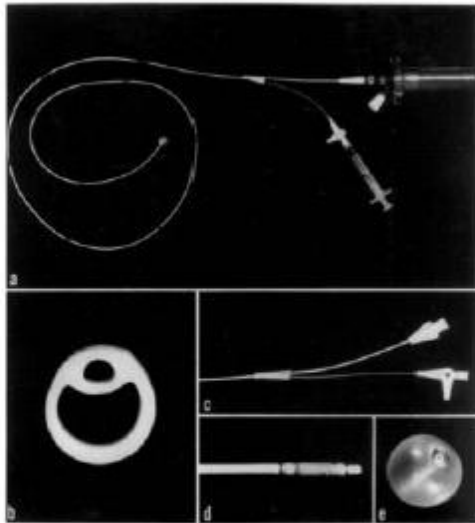
Historical Perspectives in Cardiology

The Swan-Ganz Catheters: Past, Present, and Future A Viewpoint

Kanu Chatterjee, MB, FRCP(Lond), FRCP(Edin)

Circulation. 2009;119:147-152

The Pulmonary Artery Catheter



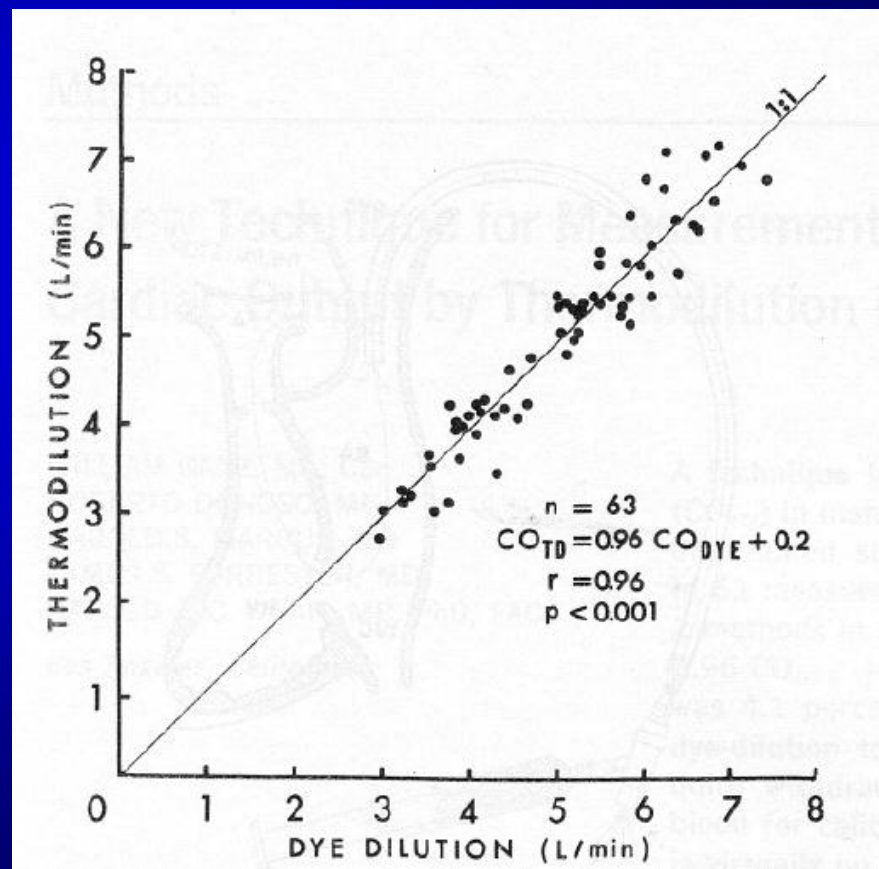
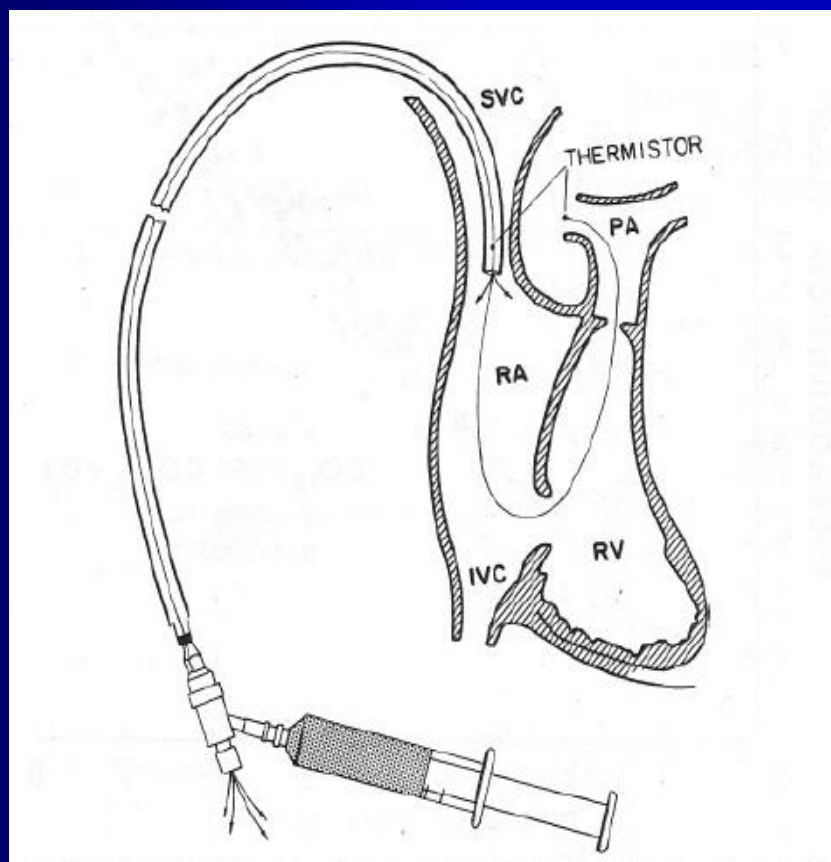
William Ganz and H.J.C. Swan

A New Technique for Measurement of Cardiac Output by Thermodilution in Man

WILLIAM GANZ, MD, CSc
ROBERTO DONOSO, MD
HAROLD S. MARCUS, MD
JAMES S. FORRESTER, MD
HAROLD J. C. SWAN, MB, PhD, FACC
Los Angeles, California

The American Journal of CARDIOLOGY

VOLUME 27, APRIL 1971



Vladimír Fencel (1923-2002)

- Harvard Medical School (1966)
- Associate Professor
- Medical Director, Respiratory Division and ICU
- acid-base balance, respiratory disease

Further co-workers:

- Karel Bergman – head of clinical ward
- Joseph H. Cort
- Jiří Heller (1931-2001) – renal physiology
- Pavel Rossman – nephropathology
- Jiří Jirka (1927)
- Ivana Reneltová (1931)
- Antonín Hornych (1931)
- Miloš Ulrych (1931)
- Karel Matoušovic (1940)
- Vladimír Prát (1928-2004)

Jan Brod and international activities

- 1960 - secretary of the WHO symposium
- 1960 - one of founding members of the International Society of Nephrology (ISN) in Evian
- 1963 - President of the 2nd Congress of ISN, held in Prague in 1963.
- famous world-wide, he was invited to talk in many universities in Europe, USA, and Australia.
- many leading and outstanding nephrologists, physiologists and cardiologists visited Prague and his Institute and furthermore his co-workers and fellows succeeded abroad

Jan Brod and 2nd Congress of ISN

- Prague, 1963
- 1st large international meeting in EEC
- 5 days duration
- supported by state authorities
- 899 delegates of 41 countries
- 520 abstracts submitted, 217 accepted (CSR 32/13)
- held in English and French
- J.Brod – President
J.Jirka - Secretary

1963 – 2nd ISN Congress

opening ceremony, Min.of Health speech



Meeting of ISN Congress representatives with Czech government authorities



2nd ISN Congress – scientific session, Brod chairs



2nd ISN Congress – scientific session



The chairman hammer



Fanfar of the 2nd Congress fo Nephrologists, 1963



Emigration 1968

- „Prague Spring”: in June 1968 Brod with other intellectuals launched the “Manifest of 2000 words”, a critical document, which asked unsuccessfully for faster democratisation process of communistic regime
- August 1968 - the Warsaw pact armies’ invasion to Czechoslovakia resulting in the repression of civil rights of regime opponents
- J.Brod became unwanted person for communistic establishment and thus he decided to emigrate abroad for the second time

Germany - Hannover, 1969 – 1985

- 1969 - appointed a head of newly founded Department of Nephrology in the Medical School in Hannover
- continued with the same tireless effort in all his professional activities and the department remained an important place for clinical nephrology, research and teaching
- organized in Hannover a number of meetings and symposia visited by many world leading nephrologists. The first symposium formed a basis for the series *Contributions to Nephrology*.
- February 1985 after an acute short illness.

The impact of Jan Brod to nephrology in
Czechoslovakia

Nephrology in Czechia in the Early 1960's

Branches

internal medicine	37
physiology	9
pediatrics	5
other	5
anatomy	2
pathology	2
balneology	2
gynaecology	2
urology	2
unknown	2
rheumatology	1

Employers

schools of medicine	30
research institutes of MH ...	20
academy of sciences	6
health service	2

Milestones in the history of RRT in Czechoslovakia (in 50s – 60s)

- 1952 - continuous peritoneal dialysis for the treatment of acute renal failure
- 1955 - 1st acute hemodialysis treatment unit - Prague (4th in Europe)
- 1961 - 1st living donor kidney transplantation
- 1966 - intermittent peritoneal dialysis
 - renal transplant program (IKEM, Prague)
 - 1st cadaver donor kidney Tx and 1st kidney re-transplant
- 1967 - 1st simultaneous hemodialysis center for patients with chronic renal failure
- 1969 - regular dialysis treatment (RDT) program
 - 1st Annual Report on RDT and Tx in National Congress of Nephrology

The impact of Jan Brod to nephrology in Czechoslovakia

- leading nephrologist
- leading researcher in the field of nephrology and cardiology
- founder of the Czechoslovak Soc. Nephrology (1958)
- president of CSN (1958-1968)
- moral authority

MIMOŘADNOU PRACOVNÍ SCHŮZI

ve středu 10. dubna 1963 v 17,00 hodin
v posluchárně III. interní kliniky KU v Praze

PROGRAM

prof. J. Hamburger,

president Medzinárodní nefrologické společnosti,
Paříž: Současný stav transplantace ledvin.

Dne 11. dubna v 11,30 hod. pořádá Nefrologická sekce
spolu s Ústavem pro choroby oběhu krevního v knihovně
Výskumného ústavu výživy lidu v Praze-Krči, Thomayerova

nemocnice přednášku

prof. J. Hamburgera:

Některé nové poznatky ze srovnávací studie kliniky
a biopsie ledvin.

MUDr. L. Hradcová,
jednatel

Doc. Dr. J. Brod, Dr. Sc.,
předseda

Jan Brod in Slovakia

- introduced clinico-physiological approach in nephrology
- actively involved in education of nephrology
- regular participation in meetings held in Slovakia
- involved in clinical and experimental research in nephrology
 - ➔ cardiovascular and nephrology projects
- fellowships:
 - ➔ all leading nephrologists from Slovakia passed short or long-term fellowships in J.Brod's department
- place of holiday: skiing in Donovaly

To the memory of Jan Brod

- Jan Brod Memorial Lecture – Green College, Oxford, UK
- Jan Brod Prague Memorial Meetings:
 - initiated by the CSN
 - 1991 Vladimír Fencel (Harvard Med.School, Boston)
 - 1992 H.de Wardener (Charing Cross Hospital, London)
 - 1993 Thomas Dousa (May Clinic, Rochester), Harald Lange (Marburg), John Cunningham (London)
 - 1995 Barry Brenner, Steward Cameron, James Donadio
- Jan Brod Foundation (1993)
 - K.Matoušovic, J.Jirka, V.Martínek, O.Schüeck,
- Jan Brod Symposium (1995), Olomouc
 - IgA nephropathy (K.Konečný)
- Jan Brod Memorial Lecture (since 2005)
 - each other year as a part of CSN Educational Meetings

GREEN COLLEGE

JAN BROD MEMORIAL LECTURE

5.30 p.m. - Thursday 13 April 1989

Witts Lecture Theatre
Radcliffe Infirmary

PREVENTING RENAL FAILURE

Professor A. W. Asscher, MD, BSc, FRCP

Dean, St. George's Hospital Medical School, London
and Chairman of the Committee on Safety of
Medicines, DHSS

All Welcome

Current Publications about Jan Brod

Current Publications about Jan Brod

Nephrol Dial Transplant (2004) 19: 1374–1377

DOI: 10.1093/ndt/gfh087

Advance Access publication 6 April 2004

Historical Note

**Nephrology
Dialysis
Transplantation**

From the Prague Spring to a Chair in Nephrology in Germany: Jan Brod (1912–1985)

Alexander Woywodt, Jens Bahlmann, Marion Haubitz, Hermann Haller and Karl-Martin Koch

Division of Nephrology, Department of Medicine, Hannover Medical School,
Hannover, Germany

Current Publications about Jan Brod

Kidney
Blood Pressure
Research

Kidney Blood Press Res 2011;34:299–302
DOI: 10.1159/000326906

Published online: June 21, 2011

Contribution of Jan Brod to Nephrology

Ivan Rychlik^a Karel Matoušovic^b

^a2nd Department of Medicine, 3rd Faculty of Medicine, and ^bDepartment of Medicine, 2nd Faculty of Medicine, Charles University, Prague, Czech Republic

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Current Publications about Jan Brod

FAMOUS NEPHROLOGISTS

JNEPHROL 2011; 24(S17):S00-S00

DOI:10.5301/JN.2010.9999

Jan Brod and his contributions to hypertension and nephrology

Miroslav Mydlík

Fourth Internal Clinic, Faculty Hospital of L. Pasteur and
Institute of Experimental Medicine, Medical School of P. J.
Šafárik University, Košice - Slovak Republic

HEREDITATIS PETITIO ČESKÉ NEFROLOGIE

Editoři: Karel Matoušovic, Ivan Rychlík, Sylvie Dusilová Sulková



Current Publications
about Jan Brod and
history of nephrology
in former
Czechoslovakia

Matoušovic, Karel; **Rychlík, Ivan**; Dusilová
Sulková, Sylvie:
Hereditatis petitio české nefrologie.
1. vyd. Praha: Tigis, 2009. 456 s.
ISBN 978-80-903750-8-6.

Many thanks to:

- Jiří Jirka
- Karel Matoušovic
- Oto Schüeck
- Vladimír Tesař
- Miroslav Mydlík



Thank you for
your attention

Jan Brod (19.5.1912-10.2.1985)