

# 5<sup>th</sup> SESSION: THERMOGRAPHY IN THE WORLD

## The history of thermography

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**SUMMARY.** The following chronology of thermometry and infrared medical thermography is a mere summary of a detailed and well illustrated lecture given by Professor Solsona and his colleagues Martinez-Comin L. and Martinez-Comin M.P. The whole subject of thermology was shown to have made slow, and often uncertain progress. The historical detail of so many centuries were graphically portrayed by the speaker.

**Key words:** telethermography, history, chronology, thermometry.

### HISTORY OF MEDICAL THERMOGRAPHY

- 400 a.C. Hippocrate used his own hand as a thermometer and considered the rise of the body heat as a sign of acute diseases.
- 1595 Galilei in Pisa devised the thermometer.
- 1612 Sanctorius in Padua used a thermometer for determining the body heat.
- 1660 Otto von Guericke suggested the calibration of the temperature in 7 degrees.
- 1665 Huygens proposed the freezing point or the boiling-point of water as a thermometer fixed point.
- 1702 Roemer describes his scale of temperature.
- 1708 Fahrenheit's scale of temperature.
- 1729 Boerhaave in Leyden applied the temperature measurement to his patients. His students, von Swieten and de Haen use in the following years the measurement of temperature and study the circadian variations in old persons, in fever.
- 1742 Devising of the centigrade scale by Celsius and Linnaeus.
- 1766 Hunter observed segmental variations during localized inflammation.
- 1774 Bladgen describes the temperature chan-

ges in individuals subjected to high rises in ambient temperature.

- 1780 Analysis of the origin of body heat (Lavoisier and Laplace).
- 1798 Description by Currie of temperature changes in therapeutic treatment.
- 1800-1830 Gentil, Home, Thompson, Joule, Buntzen, Dalton, Davy and Edwards studies on temperature changes in terms of several factors.
- 1835 Temperature measurements of various body segments.
- 1838 Piorry incorporates a thermometer in his stethoscope. Fricke measures the temperature during the menstruation.
- 1842-1844 Gierse, Chossat and Roger work, studying the temperature at the time of various states, times and diseases (22 pathological situations are studied by Roger).
- 1850 Traube and Baresprung experimental studies with determination of 30 seconds and with an accuracy of 0,01 °C.
- 1851 Wunderlich in Leipzig begins temperature measurements in his clinics. 25.000 patients were studied with more than one million determinations. He completed his studies in 1866.

1871 General adoption of temperature measurement in human clinics.

## HISTORY OF MEDICAL THERMOGRAPHY BY INFRARED RAYS

1800 W. Herschel discovers the infrared radiations by moving a thermometer through the colours from violet to red, and records a sudden rise in temperature beyond the red end of the spectrum.

1840 J. Herschel evidences the infrared on paper by evaporation of alcohol.

1929 Czerny invents << evapography >> based on the studies of J. Herschel. He foresaw the possibilities of infrared radiation in photography.

1936 Hardy. The human skin behaves like a black body.

1955 R.N. Lawson in Montreal measures from point to point the temperature of the skin adjacent to the tumour of breast and found typical increases.

1956 Lawson obtains the Baird Evapograph being no longer a military secret, and uses it for his patients.

1957 Lawson's first publication. (Canadian Services Medical Journal, 13, 517-524). Building up of the first Barnes and Recsi devices.

1960 K. Lloyd-Williams first publication (Lancet 2, 958-959) on thermography in general medicine.

1961 Lloyd-Williams' publication on thermography in breast diseases (Lancet 2, 1378-1381).

1963 Lawson and Chughtai studies which show the correlation between the rise in temperature and the malignancy of the tumour.  
First meeting of the New York Academy of Sciences (12-13 December with production of 27 studies).  
Publication of << Annals of the New York Academy of Sciences >> containing the lectures of the December 1963 Symposium. J. Gershon-Cohen fundamental publication (Radiology, 82, 280-285), (the first physician who used thermography in the States).  
Building up of Infrared Industries thermograph.

1965 Introduction of thermography in Continental Europe.

1966 P. Bourjat's thesis << Thermographie medicale >> conducted by Ch. Gros, proffered in Strasbourg.  
The first Conference on Thermography is held in Strasbourg (26 March).

1967 Publication of a monographical issue of Journal de Radiologie dedicated to the Strasbourg Conference.

1968 In Leyden, the Boerhaave course on medical thermography is held (28-30 March).  
Creation of the Japanese Thermographic Society (30 May).

1969 Publication of << Proceedings of a Boerhaave Course >> (S. Karger).  
Creation of the American Society of Medical Thermography.  
Second Meeting of the Japanese Society (25 September).

1971 Meeting in Baden (May) and in Paris (December) for the creation of the European Thermographic Society.

1972 Symposium on << therapeutiques non mutilantes dans le cancer du sein >> in Strasbourg; the great significance of thermography for the therapeutic tactics is demonstrated. (11 studies on breast thermography are produced).

1973 Thermography constitutes, with angiography, the limeline subject at the XIIIth International Congress of Radiology (Madrid, October, 15-20); 43 studies are brought up.  
Publication of R. Ghys book: << Thermographie Medicale >>.  
Bringing out of the book << Medical Thermography x> edited by K. Atsumi, gathering the studies read during the second and the third Conferences of the Japanese Thermographic Society.  
Publication of the book by Evans and Gravelle.

1974 A first European Congress on Thermography is held in Amsterdam (14-18 June). Creation of a Commission on thermography teaching.

1975 Publication of the First European Congress on thermography. In Tunis, (April) the Fourth Seminar of Club Francais de Teltthermographie Clinique is held. (The first took place in 1972 in Toulouse, the

second in May 1973 in Bordeaux, the third in April 1974 in Bandol (Bendor).

1976 C.F.T.T.C. Fifth Seminar in Strasbourg (June).  
Teaching Commission of the European Thermographic Association book on Thermography completed.

1977 In Marseilles, C.F.T.T.C. Sixth Seminar (May).  
Thermography is again included in the International Congress of Radiology (Rio de Janeiro, October).