

# NEURO IMAGE

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## A PALINDROMIC YEAR

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**I**n this issue of **Neuro Image**, you will find mention of early days of radiology and, from quite further back, recall of some of the aphorisms of Hippocrates. It is the meaning of palindromic, "to run backward", that decided me to write these lines.

We are now moving away into 1992 with its promises of new achievements, new discoveries. We intend to keep up with the pace, in order to give the best possible imaging investigations to the patients referred to us.

.....  
*Denis Melanson*

# THE APHORISMS OF HIPPOCRATES

**T**hey who are diseased in any part, and do not commonly experience pain, are diseased in mind.

- It is impossible to cure apoplexy when severe, and very difficult even when slight.

Persons who are naturally of a full habit die suddenly, more slender.

- Among children subject to epilepsy, changes, especially of age, of country, and of manner of living, affect a cure.

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LIFE IS SHORT, ART IS LONG

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OPPORTUNITY FUGITIVE

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EXPERIENCE DELUSIVE

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JUDGEMENT DIFFICULT

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- Things to which for a long time the body has been accustomed, occasion less inconvenience than others more salutary to which it has not been habituated.

- In young people, a tall form is noble and beneficial but when age approaches, the form becomes impaired and is less advantageous than shortness.

Epilepsy which occurs before puberty, may be removed; but occurring after the age of 25, it continues through life.

From the age of forty until sixty, the greatest liability to apoplexy occurs.

- Woman is not ambidexter. ■

## S.I.L.A.N.

**L**a Sociedad Ibero-Latino Americana de Neuroradiología que congrega neuroradiólogos de habla española y portuguesa cumplió ya tres años.

Sus miembros, provenientes de las tres Américas y de Europa se reunieron en Septiembre en Guadalajara, México. Doscientos doce especialistas intercambiaron proyectos, conocimiento y experiencia. La calidad de las presentaciones fue excelente y la organización del Congreso impecable.

Nombres reconocidos internacionalmente como los de don Juan Taveras, Fernando Vinuela, Enrique Palacios, Carlos Gonzalez, Jesus Rodriguez-Carbajal,

Jordi Rusalleda, entre otros, participaron en el programa. Jóvenes miembros presentando trabajos en TC, RM y neuro intervencional dieron a la reunión un aire refrescante.

Todo el mundo sacó provecho de las sesiones y la participación fue extraordinaria y estimulante.

Las actividades sociales cálidas y simpáticas como es de esperarse de tal concurrencia.

El siguiente Congreso se llevará a cabo en Santo Domingo coincidiendo con los 500 años del descubrimiento de América.

*Raquel del Carpio-O'Donovan*



# OF PLATES, FILMS AND PRINTS

by Denis Melanson, Gilles Leroux  
and André Cormier

« Of special interest in many ways is the fact that photographic dry plates show themselves susceptible to x-rays. We are thus in a position to corroborate many phenomena in which mistakes are easy and I have, whenever possible, controlled each important ocular observation in fluorescence by means of photography». (Roentgen)

Roentgen himself was indicating the importance of the photographic plate as a means of recording the radiographic image. Roentgen's work was immediately carried forward by a host of scientific investigators, and the photographic plate became the foundation upon which was based much of the knowledge later acquired (Fig. 1).

Radiography is photography since the process of obtaining images on a sensitized surface is dependent upon the action of light or other radiant energy.

« At that time,  
.....  
it was general practice  
.....  
to print all radiographs  
.....  
on photographically  
.....  
sensitive paper  
.....  
(bromide paper) »

Even at that time, with limited materials, one cannot help but be impressed with the remark-

able results shown in reproductions of radiographs secured by pioneer workers with no more elaborate equipment than a low-powered induction coil, a temperamental gas tube, and a photographic dry plate.

At that time, it was general practice to print all radiographs on photographically sensitive paper (bromide paper). This was not a serious handicap because a more satisfactory print could often be

(continued p.4)



Figure 1

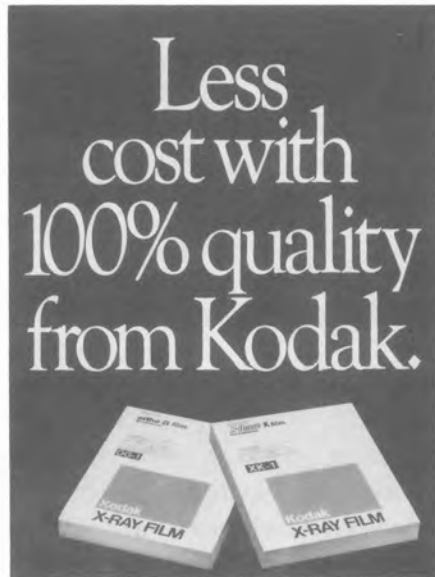


Figure 2

secured from the early type of radiograph than is possible from a present-day radiograph in which differences in detail are recorded with considerable contrast.

These statements were made by the late Arthur W. Fuchs in a chapter of «Classis descriptions in diagnostic roentgenology», Andre J. Bruwer, editor, Charles C. Thomas, publisher, 1964.

Over the years, plates have been replaced by emulsion films (Fig. 2) and these have become the official documents Roentgen was referring to. When Computed Tomography (CT) appeared in the early seventies, polaroid photography of the image provided on

the computer console was first used in our Institution, soon to be replaced by films produced by imagers, and more recently by laser cameras. Magnetic Resonance (MR) is now using the same imaging process. Having to deal with numerous requests for examinations and for films, we looked into the possibility of stepping back in time, and producing the images on paper. We looked around and decided to experiment with the Sony Multiscan Video Printer (Fig. 3). We have found the images to be of good quality and positive comments were received from our consultants and clinicians (Fig. 4).

We are presently pursuing our investigation further, now along the line of transmission of this paper image. It seems that a good quality fax machine can preserve the quality of the image.

We wish to stress the cost-saving aspect and the efficacy of this method. ■



Figure 4

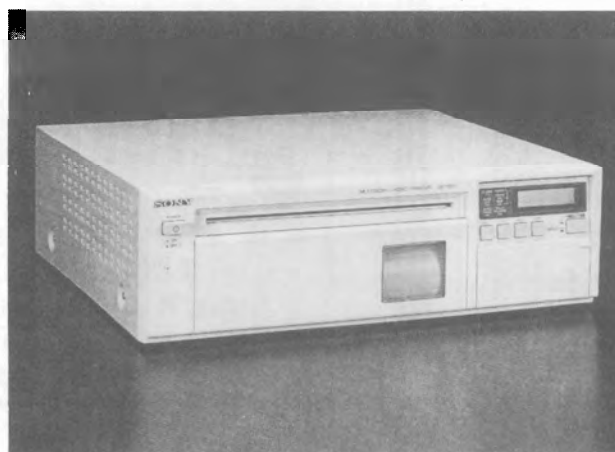


Figure 3



# IMAGES OF PICK'S DISEASE

*François Leproux M.D. & Denis Melanson M.D.*

Completing Pick's work, Onari and Spatz defined the anatomic and clinical findings of Pick's disease in 1926. The early symptoms occur in the sixth decade and develop in two to five years to the characteristic state. It associates a dementia with reduced attention and ideas, apathy and lack of concern, behaviour disorders, such as either desinhibition or apragmatism, stereotypies, and bulimia. The patient constantly ignores his troubles. Often, speech deficits are present consistent with am-

nesic aphasia, comprehension reduction, verbal stereotypies, echolalia, and palilalia. They evolve to mutism. The absence of Wernicke's aphasia, praxis and gnosis deficits, disorientation, psychotic troubles, and extrapyramidal failures differentiate Pick's disease from Alzheimer's disease. The latter is 3 to 10 times more frequent (1).

The macroscopic pathological study reveals a diffuse bilateral atrophy of the frontal and temporal, and sometimes parietal, regions (1), predominant on the left in two thirds of the cases (2). The precentral and

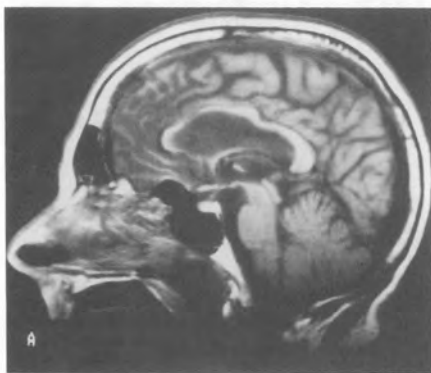
postcentral gyri, posterior two thirds of the superior temporal gyrus, angular gyrus and occipital lobe, are spared. Histologically, the atrophic areas demonstrate gliosis and, more characteristically, cell ballooning in the amygdala nuclei and silver cytoplasmic inclusions in the hippocampal gyri. There is also a demyelination of the frontal and temporal pontine tracts as well as an atrophy of the caudate nuclei (1).

On computerized tomography (CT), Knopman et al. proposed two criteria, among which only one would suggest the diagnosis of Pick's disease:

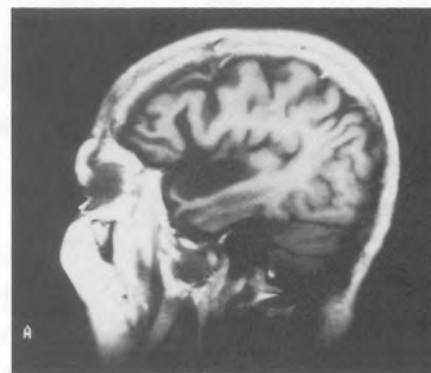
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## Figures 1

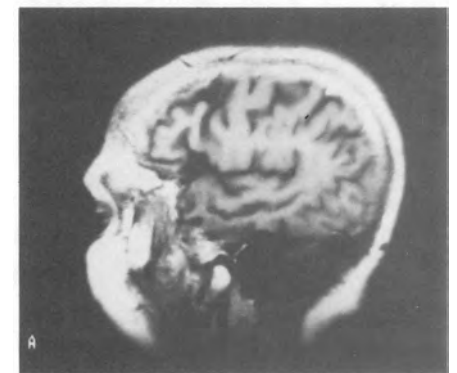
*Sagittal T1 (TR 550/TE 19/NSA 1) weighted images*



**Figure 1 a**  
*Atrophy of anterior corpus callosum*



**Figure 1 b**  
*Atrophy of left superior temporal gyrus with sparing of its posterior portion*



**Figure 1 c**  
*By comparison, appearance of right superior temporal gyrus*

1) dilatation of one or both of the frontal horns with extreme thinning of frontal polar cortex, either symmetrically or asymmetrically; 2) extreme thinning of the anterior temporal pole cortex with temporal horns enlargement, either symmetrically or asymmetrically. (3)

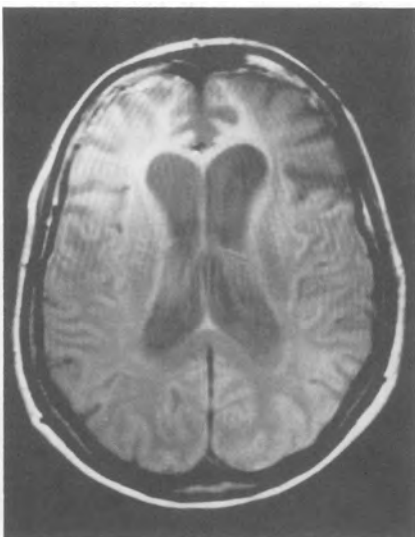
Magnetic resonance imaging demonstrate most of the pathological findings. Thus, the sagittal images clearly delineate the atrophic or spared areas, especially in the

temporal lobes (Fig. 1). MRI also shows the asymmetry of the atrophy (Fig. 1,2) and the involvement of the caudate nucleus (Fig. 2), islands of Reil, amygdaloid hippocampal structures, corpus callosum, and anterior commissure (Fig. 1). Hyperintense signal on the long TR sequences is demonstrated in the cortex and adjacent white matter of the affected regions (Fig. 2,3) (2). These findings are much more specific than that of CT and therefore, MRI is recommended for the diagnosis of

Pick's disease. The limiting factor lies in the possible agitation of the patient, who often requires general anaesthesia. ■

### References:

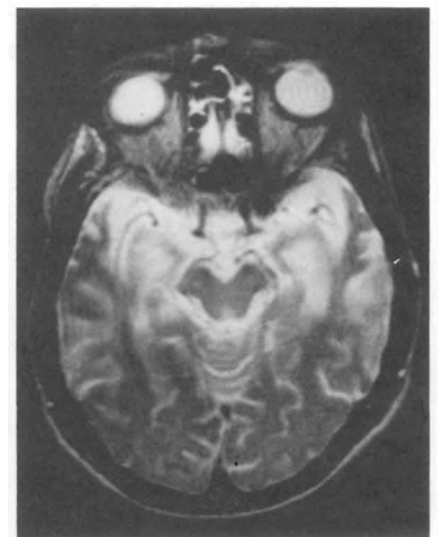
1. **Brion S.** Atrophies et scléroses cérébrales tardives - *Encycl Méd Chir, Paris Neurologie*, 17056 A<sup>10</sup>, 9-1981.
2. **Atlas SW.** *Magnetic resonance imaging of the brain and spine.* New York, Raven Press, 1991: 584-587.
3. **Knopman Ds, Christensen Kj, Schut Lj et al.** The spectrum of imaging and neuropsychological findings in Pick's disease. *Neurology* 1989; 39: 382-368.



**Figure 2**  
*Axial PD (2100/20/1) weighted images. Note the atrophy of the caudate nuclei and the right frontal gliosis*



**Figure 3 a**  
*Axial T2 (2100/78/1) weighted images demonstrate the atrophy and the gliosis*



**Figure 3 b**  
*Axial T2 (2100/78/1) weighted images demonstrate the atrophy and the gliosis*



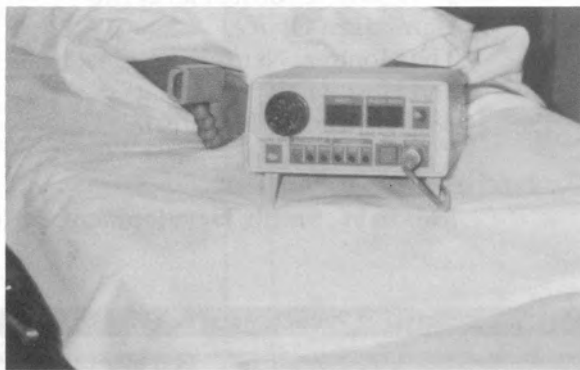
## MRI - SEDATION OF CHILDREN

W

e used to either give oral Chloralhydrate or IM Cocktail (Demerol, Droperidol and Atarax). The rate of success and of good quality exams was not optimal.

During the time period from the end of May 1991 to October 1, 1991, 50 children have received the combined sedation of Chloralhydrate followed by the IM Cocktail.

11 of those 50 patients did not receive Droperidol in the Cocktail; they were under age 2.



Oxymeter's clip secured on child's big toe

A total of 6 exams were unsuccessful due to the children not remaining asleep during MRI. Only one of those 6 children had not received Droperidol. One child was 2 years old, the



Sedated child in scanner

remaining children were aged 4, 5, and 6. According to the nurse's notes, the complete Cocktail and Chloralhydrate was given after the Cocktail, not before, which may have contributed to the sedation not being effective.

Presently, the Chloralhydrate is given first, then after 15 minutes the Cocktail.

All children who are sedated for MRI are monitored with the Nonin pulse oximeter. When necessary, the Dinemap B.P. monitor is also used.

We have found this new method much more reliable and rewarding.

*Sheila Koutsogianoupoulos*  
Acting Head Nurse, Radiology

DM/mmos: 10.08.91



## Montreal Neurological Institute

### \$15 MILLION AND COUNTING!

**T**he Neuro community has been hard at work collecting donations towards the completion of a Capital Campaign to raise \$17.2 million. More than \$15 million in cash and pledges means we are almost there.

The campaign is part of a new development program at the Neuro. The new program inherits a rich resource from the Neuro's past endeavours: the ability to attract volunteers to assist with the work. The reputation for excellence built over the past half century, the exciting work going on today, and the promise of future breakthroughs in diagnosis and care, attract individuals to the Neuro's case like a magnet.

The impact of this Campaign on the Neuro is truly remarkable...

- An increase of \$ 6 million in our endowment funds
- Increased Fellowship funds for Neurosurgery, Neurology, and the Neurosciences
- The Epilepsy Monitoring Unit
- Renovated Animal Care Facilities

- The Ambulatory Care Unit
- A new PET Camera
- A new Medical Cyclotron and Automatic Arm
- NMR Spectroscopy
- Eleven new laboratories, located throughout the MNI
- A new Library
- New hospital equipment
- The Café Neuro
- A new storage and research laboratory facility

**We are hoping to gain the needed support to go over the TOP between now and the end of 1991.**

### CAN YOU HELP?

**If so, please contact us at the Campaign Office,**  
The Montreal Neurological Institute  
and Hospital,  
3801 University, Montreal,  
Quebec, H3A 2B4

**[Susan W. Smith, Development Officer]**



**S**ea<sup>s</sup>on's greetings from  
everybody at Neuro Image  
and best wishes of  
happiness and peace