



ELSEVIER

Electroencephalography and clinical Neurophysiology 98 (1996) 231–235



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SSDI 0013-4694(96)00327-6  
96000232

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*In memoriam H. Gastaut / Electroencephalography and clinical Neurophysiology 98 (1996) 231–235*

## In memoriam Henri Gastaut

Henri Gastaut passed away on 15 July 1995 at the age of 80 following a long illness which he had faced with courage and resignation.

Born in Monaco on 5 April 1915 he came from a modest family. After a mediocre school career characterized by a certain lack of discipline, he received his baccalaureate in Nice rather late. On the other hand he married very young, at the age of twenty. His wife was Yvette Reynaud, who came from a wealthy Marseilles family. Following several years of hesitation and changing from banking to painting to politics and to a degree course in natural sciences, he finally found his direction and began his medical studies in Marseilles. Quickly excelling, he was received "first" at the "internat" (analogous to a residency) after having prepared the dossier with Yvette, whereby began an exemplary collaboration which would last more than 40 years. He specialized in neurology and anatomic-pathology and at the end of World War II he became interested in electroencephalography and made his first recordings with one channel on a Marey roller.

At the end of 1946 he headed for Bristol, UK, in order to work with Grey Walter. With him he learned the basics of the EEG, the significance and the value of certain anomalies. Here he discovered the importance of intermittent light stimulation as a means of activation of the EEG and its role in setting off epileptic symptoms in predisposed subjects. He was fascinated by Grey Walter's intelligence and the means by which he organized a research study. They became friends and throughout his life he was to consider Grey Walter as his master.

Returning to Marseilles while continuing to assume his responsibilities at the hospital, in neurology, and at the University, in pathological anatomy, he acquired a 4-pen Grass and created a small EEG laboratory at the Timone Hospital. Very rapidly a series of young French and foreign fellows gathered around him fascinated by the revolution which EEG was bringing to the knowledge of certain neurological syndromes such as epilepsy and by the personality of the man who defended with such spirit this new technique for the functional exploration of the brain. Two years later, in 1949, at the time of the Second International Congress of EEG in Paris, all the great names in the field went to Marseilles for the first but not for the last time.

At the end of 1949 he left for Canada to work for 3

months at the Montreal Neurological Institute with Wilder Penfield and Herbert Jasper. He perfected his knowledge of the EEG symptomatology of epilepsies in humans, be they focal, and notably temporal, or generalized. In animals he studied the role of the thalamic structures in the genesis of generalized paroxysmal EEG discharges brought on by Metrazol. He returned from this stay very marked by ideas which would influence his entire career:

- The importance of knowing very well the clinical symptoms of seizures if one wishes to draw efficient correlations with EEG data;

- The potential impact on the understanding of numerous neurological syndromes, and notably of generalized epileptic seizures, of the recent discoveries about the brain-stem reticular formation and the thalamic reticular system, and the concept of the "centrencephalon."

Upon his return to Marseilles, aided by the Rockefeller Foundation, he developed a research sector; his laboratory at the Timone Hospital grew; in 1960 he created the "Centre Saint Paul" designed to examine, welcome and treat epileptic children, and in 1961 the research INSERM unit in neurobiology. He drew more and more French and foreign medical doctors and fundamental researchers and with them and with those who composed his "school" would during 20 years build a scientific work of international reputation, putting Marseilles on the world neurological map as some like to say.



The scientific work of H. Gastaut, no matter what he was saying at the end of his life, is important in the fields of EEG and neurophysiology, and it is fundamental in the field of epilepsy. To note all his works here would be tiresome; the essential has been presented and discussed during the "Colloques de Marseille" which he organized each September. He tried his best to make these colloquia very varied scientifically and to organize them in such a way that they maintained an informal character favoring contact between the young participants and the speakers. There were 25 such colloquia which for the most part took place in Marseilles (one was held in Germany, another in Spain and two in Italy). Two were followed by meetings which are to be remembered, one in Bethesda on "The temporal lobe epilepsy: an international colloquium" in 1957, the other in Moscow on "The relationship between EEG and psychological phenomena" in 1958. The proceedings have generally been published in French and/or in English either in a journal such as the "Revue Neurologique" or "Epilepsia" or in isolated volumes as part of a series published by C.C. Thomas (Springfield) or as supplements to the Journal of Electroencephalography and Clinical Neurophysiology. Henri Gastaut occasionally was one of the editors of these proceedings, but not always. Once he had conceived and organized the meeting he preferred to withdraw and leave the publishing to persons who had participated so as to be able to dedicate himself to the preparation of the next one. Most of the important references concerning these colloquia as well as the principal publications of Gastaut and his school are to be found

in the volume edited by R.J. Broughton following the 25th and final colloquium (Henri Gastaut and the Marseilles School's Contribution to the Neurosciences, *Electroenceph. Clin. Neurophysiol.*, 1982, Suppl. 35).

Nonetheless, it seems necessary to recall here the subjects of some of his essential works.

- He described new EEG activities such as "le rythme en arceau" (mu rhythm), lambda waves, the posterior theta rhythm, etc.

- He emphasized the EEG activities which characterize chronic cerebral circulatory insufficiency as well as all transitory ischemic phenomena, notably syncope.

- He detailed the existing relationships, in an awake subject, between the EEG and different types of personality and the EEG and states of consciousness called "altered."

- He was the first to systematically study the electroclinical symptomatology of numerous non-epileptic paroxysmal behaviors of sleep (nocturnal terrors, somnambulism, etc.).

- He described new forms of epilepsy (photogenic epilepsy, startle epilepsy, hemiconvulsion-hemiplegia-epilepsy syndrome, severe epileptic encephalopathy in the child called the Lennox-Gastaut syndrome, benign partial epilepsy of the child with occipital spikes and waves).

- He contributed to the knowledge of numerous forms of epilepsies in the adult and in the child (anatomoelectro-clinical study in man of epilepsy called at that time "temporal," and study of the role of the amygdala at its origin in animals; study of the West syndrome, etc.) and to research the most efficient treatments depending on the type of epilepsy and its expression (treatment of status epilepticus by benzodiazepines, etc.).

- Searching for the relations between art and epilepsy he published very interesting studies on Van Gogh, Dosztoievski and Flaubert.



The activities of Henri Gastaut were not only centered on his laboratory at the Timone Hospital and the "Centre Saint Paul."

As early as 1947 at the first International Congress of EEG in London where he was present, he was considered to be one of the possible energetic leaders capable of restarting on this side of the Atlantic, after the war, this recent and promising technique begun in Europe but which had been developed in the USA during those black years. He was thus named a member, among others, of the ad hoc committee responsible for establishing the future EEG Federation. At the same time the "Societe d'EEG de Langue Francaise" was created, and he was named Secretary. These two functions were to allow him to play a crucial role in the preparation of the 2nd International Congress which was to be held in Paris in 1949, and to then find himself Secretary of the International EEG Fed-

eration which had just been formed. He remained so until 1957 when he became President and then Past President, without interruption until 1965. One can imagine the role which his organizational sense, his willingness and his character were to permit him to play. Everything had to be set into motion: he drew up the constitution and by-laws, often more French than Anglo-Saxon, he maintained a close relationship between the EEG Federation and the International Societies of Neurology and Neurosurgery and with the International League Against Epilepsy; he made every effort to favor the organization of international congresses of these neurological sciences successively or simultaneously in the same place.

It was during his Presidency that he organized with Rusinov the Moscow Colloquium in 1958 which was to mark a very important step in the development of international co-operative research on the brain. At the end of this Marseilles Colloquium in Moscow the 48 participants unanimously delegated Gastaut, under the auspices of the Federation and UNESCO, to form a committee for the study of brain mechanisms of higher nervous functions. Two weeks later a delegation of which he was a member proposed it to UNESCO under the name of the International Brain Research Organization (IBRO). But at this time he was visiting the Soviet Union. He did not accept this turn of events and withdrew. A few years later he forgave it and even decided that it was a good thing that he had not invested more in IBRO since, as he said, it would have been an international organization too centered on clinical aspects and the EEG.

In 1973 the Federation honored him by organizing its 8th Congress in Marseilles. The Marseilles congress was a great success. The city saluted him at the same time with an exposition of the superb collection of skulls that he had built and which several years later he would donate to the "Musee de la Vieille Charite."

As early as 1947 he became interested in the International League Against Epilepsy and tried to reactivate it. He proposed to its President William Lennox that they combine their next congress with the 2nd EEG Congress in Paris in 1949 and hold them quadriennially in combination with those of the Neurological Sciences. This was to happen. In 1953 he was elected President-elect, a post he held until 1957. But then he refused to accept the Presidency and instead accepted the position of General Secretary. Four years later he became President, and he only left office in 1978, after having served as Past President. With his organizational sense and his initiative he had the time to organize the functioning of the League and give it new growth. Two of his actions are noteworthy: his "Dictionary of Epilepsies" and his "Classification of Epilepsies." The Dictionary was published in 1973 by the WHO and translated into 7 languages. The Classification of Epilepsies was presented for the first time during the 1964 Marseilles Colloquium but was admitted by the League only in 1969. It presented numerous features which could

only be attributed to Gastaut: clarity, easy accessibility by non-specialists. However, this was a desire to classify everything which, at the time, was impossible and partly still remains so today. But this Classification had the merit of existing, and of giving rise to numerous discussions which are far from complete.

The French League against Epilepsy honored him by creating the Henri Gastaut Prize which is awarded each year to a young doctor for work done in epilepsy research.

Henri Gastaut has had a close professional and scientific collaboration with the World Health Organization (WHO) almost from its inception. He was Consultant, Advisor, Member of the WHO Supreme Body, the Advisory Committee on Medical Research. His Department of Neurology in Marseilles became the first WHO-designated Collaboratory Centre for Research and Training in Neurobiology.

Gastaut thus dominated the world of the EEG and of neurophysiology (as it was conceived in the 60s), and that of epilepsy during more than 20 years. He was, in addition, an excellent teacher and trained dozens of young doctors in the EEG and epileptology. They came not only from France but from the 4 corners of the earth although with a certain prevalence of those whose native language was French, Italian or Spanish. There are many of them who have now achieved in their own countries prominent positions in hospitals, research and university.



The academic career of Henri Gastaut was brilliant. He was named Professor of Pathological Anatomy in 1953 and of Clinical Neurophysiology in 1984. Moreover, in 1967 he was elected Dean of the Marseilles University Medical School. Very rapidly he integrated all the administrative arcana and he proved to be an excellent negotiator. These qualities, associated with his liking for risk-taking and his courage and exceptional capacity for analysis of both situations and people, allowed him to rapidly take the situation in hand during the student uprising of 1968 and to re-establish calm. As a consequence he was elected President of the "Universite d'Aix-Marseille 2" in 1971 when it was formed. Once again he was successful. Appreciated by both his peers and the high ministerial authorities, he created the "Universite d'Aix-Marseille" and defined its final structure.

The value of Henri Gastaut's career is recognized in many honorific distinctions. In France he was promoted from "Officier de la Legion d'Honneur" to "Commandeur" the day before he died. He was also Corresponding Member of the "Academic de Medecine." In fact he could have and perhaps should have received more honors from his peers if his very Mediterranean and "unusual" personality had not frightened more than one person in the Capital. He was an Honorary Member of the

Academic Royale de Medecine de Belgique, of the American Academy of Neurology, of Academia Nacional de Medicina de Buenos Aires. Corresponding Member of the American Neurological Association, and many other Societies in various countries. He has received honorary doctorates from the universities of Bologna, Liege, Ottawa and Shanghai.



Henri Gastaut was not interested only in science, medicine, the university or international associations. He was also interested in literature, opera, music, and liked to live surrounded by beautiful pieces of furniture and art which he had acquired with Yvette. His tastes were very classic and in general he did not like modern art. He was also a passionate man, and his passions varied with time: one was his involvement with sailing which he pursued for several years but then ceased abruptly following a terrible storm. His passion for skulls, be they decorated, models, miniatures, painted, lighted or masks, arose from the combination of a great artistic sensitivity and a very deep philosophical sense but lessened after he had given his collection to the Museum. Having decided at the time of his retirement that he would no longer be officially concerned with medicine or science, his last passion became politics in the broad sense of the term.

On the other hand he no longer read the specialized journals, having given his library to the "Centre Saint Paul" and the "Timone Hospital," nor did he attend the national or international congresses except on very special occasions and then only to please one or another of his fellows he particularly liked. He saw few people, but those who had the chance to penetrate his ivory tower met a man who was still interested in life and in others, and who was amused by the motivations which drove them, looking at them with astonishment, sometimes with a bit of irony but always with sympathy. He kept his attachment to the village of Les Lecques, where for more than 40 years he had almost continuously had a house, the first on the shore and the other on the cliffs.

Henri and Yvette Gastaut had 3 children: Danielle, Jean-Louis and Jean-Albert, all of whom live in Marseilles as had their parents. Both sons, like their father, are Professors at the Medical Faculty and the daughter is a teacher in a High School.

Yvette died first, and Henri passed the last years of his life with Mireille Taury who had been his faithful assistant and who accompanied him until the end.



Such was the life of Henri Gastaut and his personality as seen from the outside. In fact he fit no classical mould.

Furthermore, in addition to all his qualities, there was his charm. When he wanted to use it he was irresistible, although sometimes he chose not to use it. Then it was necessary to make an effort to discover a fascinating man who was sensible and sensitive. His was a personality so rich and with so many facets that it is very difficult to describe him in his entirety. Any portrait of him today,

including this one, can only be incomplete, which is a shame.

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