

29TH ANNUAL PRECISE TIME AND TIME INTERVAL (PTTI) SYSTEMS AND APPLICATIONS MEETING

**Editor
Lee A. Breakiron
U.S. Naval Observatory**

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the NASA Jet Propulsion Laboratory
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the Air Force Office of Scientific Research
and the U.S. Air Force Space Command

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Washington, DC 20392-5420**

1998

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Paris Observatory

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PTTI OPENING ADDRESS: THE FUTURE OF THE PTTI MEETING

**Joseph D. White
U.S. Naval Research Laboratory
Washington, DC 20375**

**Dennis D. McCarthy
U.S. Naval Observatory
Washington, DC 20392**

At the meeting of the PTTI Executive Committee on 30 January 1997, it was decided that the following principles would be implemented in the planning of all future PTTI Meetings:

- The purpose of the PTTI Meeting is to inform users about state-of-the-art capabilities in PTTI and inform government system managers and engineers and sponsoring agencies about new opportunities, programs, and technical challenges requiring PTTI.
- To emphasize the fact that system managers and engineers comprise the majority of the attendees desired, the meeting name has been changed from "The Precise Time and Time Interval Applications and Planning Meeting" to "The Precise Time and Time Interval Systems and Applications Meeting."
- The PTTI Meeting is and will remain an open meeting. This means that it will not be by invitation only. It will be advertised widely and vendors will always be able to participate.
- The PTTI Meeting will be managed more aggressively with regard to its program. A theme and a "matching" Program Committee chair will be selected for each meeting; papers not appropriate to the theme will be rejected. The Program Committee will recruit invited papers and arrange discussions and workshops in keeping with the theme. Details of the mechanics of the meeting organization will be left to the Program Committee, but the program must be approved by the Executive Committee. Each sponsoring agency will have the option of naming a representative to the Program Committee. Classified sessions may be arranged if appropriate. The meeting should be no longer than 3 days in length.
- The PTTI Meeting will continue as an annual meeting independent of other meetings, but the Executive Committee shall have the option to plan joint meetings if it feels that a joint meeting would contribute positively to the theme of the PTTI Meeting.

PTTI DISTINGUISHED SERVICE AWARD

Presented to
Prof. Bernard René Guinot
Honorary Astronomer
Paris Observatory
by

Dr. Leonard S. Cutler
Hewlett-Packard Co.

It is again a particular honor and a great pleasure for me to help recognize past achievements in the time and frequency arena. I am very happy, with inputs from Dr. Claudine Thomas, to do this for Bernard Guinot, a distinguished scientist, astronomer, and friend for many years. I am certain everyone agrees that he is very well qualified to receive this award, as evidenced by an impressive list of important contributions, accomplishments, and awards.

Bernard was born in Livarot, France, in 1925. From 1945 to 1952, he was an Officer in the Merchant Navy. In 1946-47, he was on a small freighter in the Far East with a Chinese crew. The ship's radio officer was drunk 24 hours a day and, for a full year, was not able to get a single time signal. This is where Bernard had his first contact with time determination and comparison. He did this by astronomical determination of Universal Time at sea in view of the coast, clock transportation to nearby ships in a harbor, and even synchronization by light signals with ships upon the open sea. This was an early, and very practical, introduction for him to clock synchronization. Later, on more comfortable ships, he resumed his studies in mathematics, thus gaining respect from some of the captains, but also some complaints about not being seen enough among the passengers.

Bernard says that, probably because he was a seaman, the Director of the Paris Observatory, A. Danjon, recruited him to be his assistant in 1952. His first scientific work was to make determinations of Universal Time and latitude by observing the altitude of stars with an astrolabe, invented by Danjon, enabling 1,000 times less uncertainty than with a sextant. The nighttime observations in the open air were often very uncomfortable and sometimes disappointing, as was the case when, after a full winter night of data-taking, Bernard discovered that the janitorial staff had thrown the chronograph tape away.

In 1958, while at the Observatory, he received his Doctor's degree. While there from 1952 to 1984, his title was Astronomer, Paris Observatory. During that time he had two books published: *The Measurement of Time* and *The Equal Altitude Method in Astronomy*.

From 1984 to 1992, he was Physicist, Bureau International des Poids et Mesures. He retired from the BIPM in 1992 and, since then, has been Honorary Astronomer, Paris Observatory. Recently he has written, with Claude Audoin, a third book, *Fundamentals of the Measurement of Time*, to be published in December, 1997.

Some of his accomplishments include:

- Determination of star position by a new method, the equal altitude method, using astrolabes
- Studies and determination of the astronomical constants of aberration and nutation
- Relativistic definition of reference systems
- Introduction of a new concept, the non-rotating origin, allowing a rigorous definition of the earth's rotation about the moving rotation axis
- Work in many aspects of earth rotation and geodesy, including the definition of Universal Time
- Creation of International Atomic Time, TAI, including:
 - Organization of the network of contributing clocks and time comparisons
 - Establishment of stability and accuracy algorithms
 - Organization of TAI dissemination
 - Relativistic definition of TAI
- Promotion of the UTC system and the introduction of a mathematical relation between UTC and TAI
- Transfer of the activities on TAI to the BIPM.

Bernard considers his creation of TAI and the concept of the non-rotating origin his most important contributions. He is presently working on applications of general relativity to fundamental astronomy, geodesy, and metrology and continuation of his research on the non-rotating origin.

His affiliations and awards include:

- Corresponding Member, French Academy of Sciences
- Member, Bureau des Longitudes (President, 1984-1986)
- Member, Academia Europaea
- Prix du Commissariat de l'Énergie Atomique (1991)
- Tompion Gold Medal of the Worshipful Company of Clockmakers, London (1997)
- Prix Émile Girardeau, Académie de Marine (1991) (This was very pleasing to Bernard, the former sailor.).

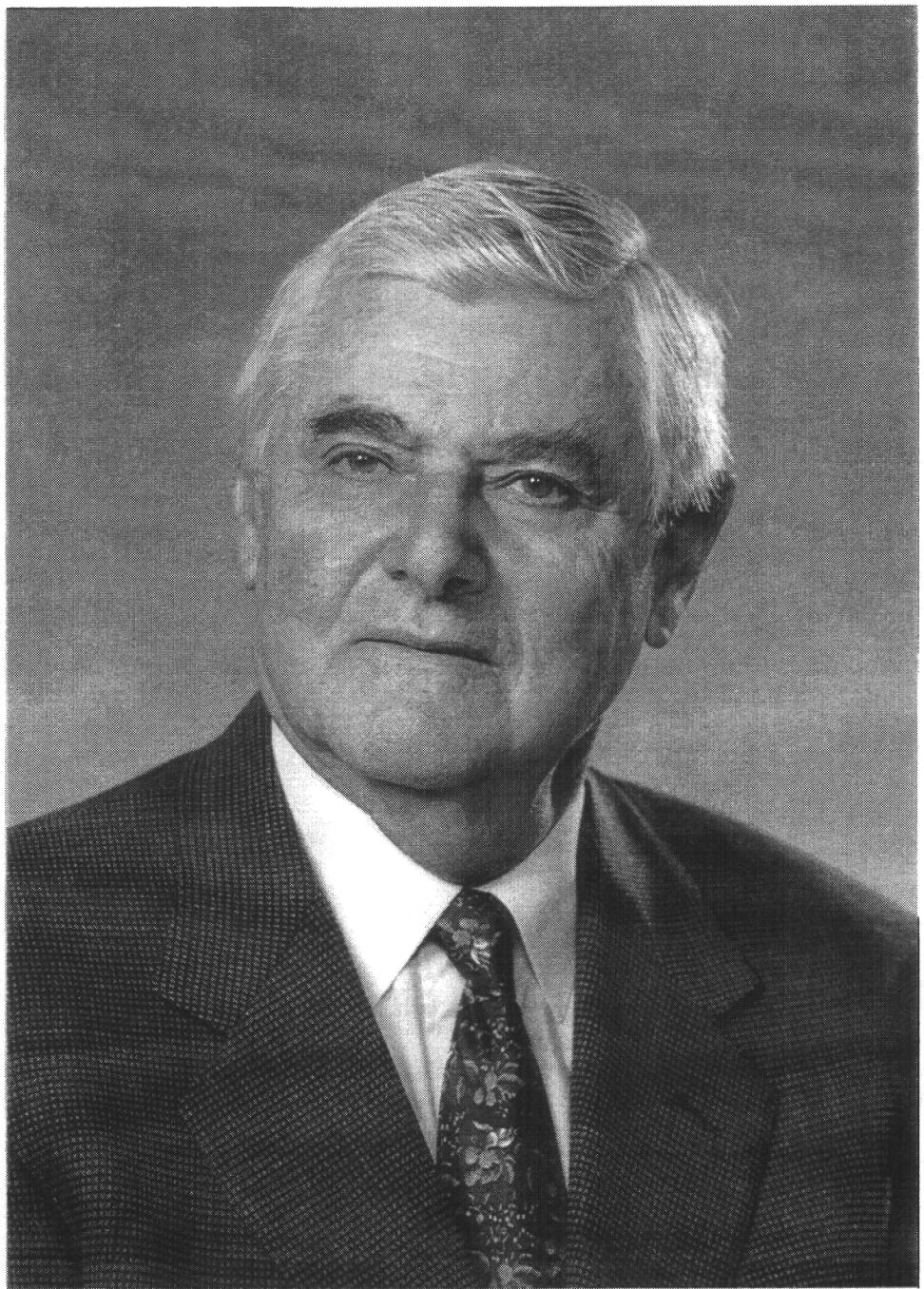
Bernard's interests include diving and, not surprisingly, sailing. One time he was invited to attend a meeting on time dissemination at the Cagliari University, Italy. To get there he rented a sailboat and spent five days navigating from France to Cagliari. This caused some complications for the reimbursement of travel expenses.

Once, when arriving in New York coming from France, he was going through immigration and got to a severe-looking customs officer who examined his passport with a frown. He

motioned Bernard to follow him. They went to the office and Bernard, expecting a search, was discouraged. The officer then said his first words: "What do you think about black holes?" He had seen "Astronomer" on the passport.

Bernard has clearly made many important contributions to astronomy, physics, and the time and frequency community. He is a capable, dedicated, and highly productive individual as well as being a fine person.

With great pleasure we now give him his award and express our congratulations and appreciation for his outstanding contributions and service to our community. Bernard, will you please come up?



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