

which have provided the impetus for the new research programs now proposed in the cancer virus field. The \$5 million purported to be administered by me impressed Bazell, but as former chief of the Laboratory of Infectious Diseases of the National Institute of Allergy and Infectious Diseases for 13 years, I was responsible for influencing expenditures many times greater than this amount, expenditures that were regarded by many as well worth the effort; at least no one has questioned the value received.

Many new discoveries concerning the natural behavior of RNA and DNA tumor viruses in natural species and ecologies as well as in laboratory systems are entirely responsible for the new excitement that has been generated among virologists, cancerologists, immunologists, and molecular biologists in all parts of the world. Thus the recent breakthroughs on the cancer virus front are mainly responsible for the new research proposals and the additional appropriations for cancer research. . . .

It will come as no surprise to the numerous virus and cancer investigators serving as expert reviewers for the National Cancer Institute research contracts (research contracts, like grants, must go through a series of peer reviews) to learn that I am not the director of NCI's virus program but one of several branch chiefs in NCI's Special Virus Cancer Program, which is currently administered by Frank Rauscher and John Moloney. This error compounds some of Bazell's other conclusions concerning NCI's Special Virus Cancer Program (it is no longer the Special Virus Leukemia Program).

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### Walter Reed Papers

I am editing the works, papers, and letters of Walter Reed (1851-1902), known for his contributions to the suppression of yellow fever. I would appreciate learning of original documentary material, letters, papers, and other primary source material related to Dr. Reed.

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8 JANUARY 1971

# Signal Averaging...

## Principles and Practices

### *Phase Correction in NMR*

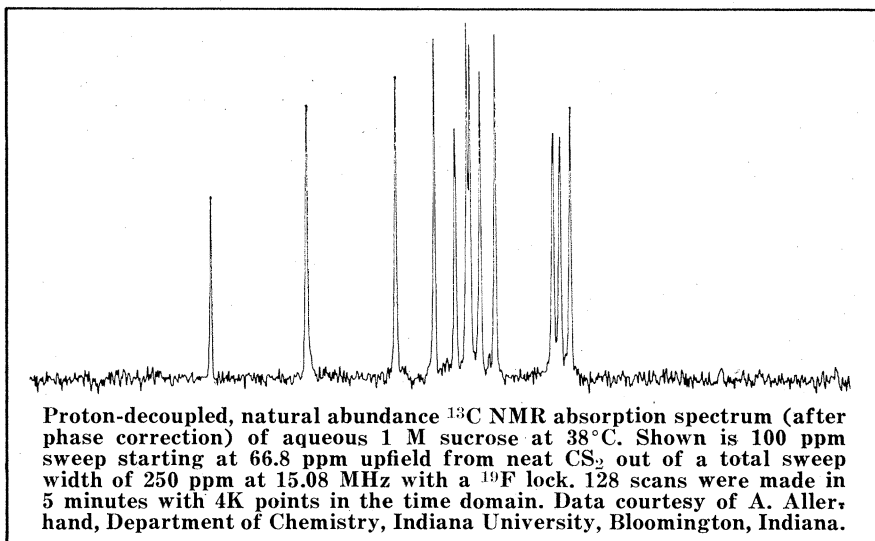
Number 12 of a Series

The objective of fast Fourier transform (FFT) techniques in NMR spectroscopy is to produce absorption spectra equal or superior to those obtained through CW methods, and in far less time. Unfortunately, rather than directly providing a true absorption spectrum, the FFT algorithm yields only two intermediate results called the real and imaginary components.

Ideally, the real component should be a good representation of the absorption spectrum. But some distortion due to the phase characteristics of the spectrometer/data handling system is unavoidable. Any time lag in recording data following onset of the exciting pulse, for example, will produce a linear frequency-dependent phase shift. (Often, such a delay must be deliberately introduced to avoid feedthrough of the pulse into the observed free induction decay signal.)

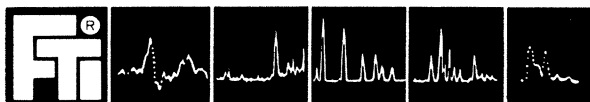
It is possible to eliminate phase distortion by calculating the magnitude spectrum, i.e., the square root of the sum of the squares of the real and imaginary components. The problem here is that spectral lines are broadened by the squaring operations; therefore, the resolution obtainable from a magnitude plot is necessarily inferior to that of a true absorption spectrum.

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