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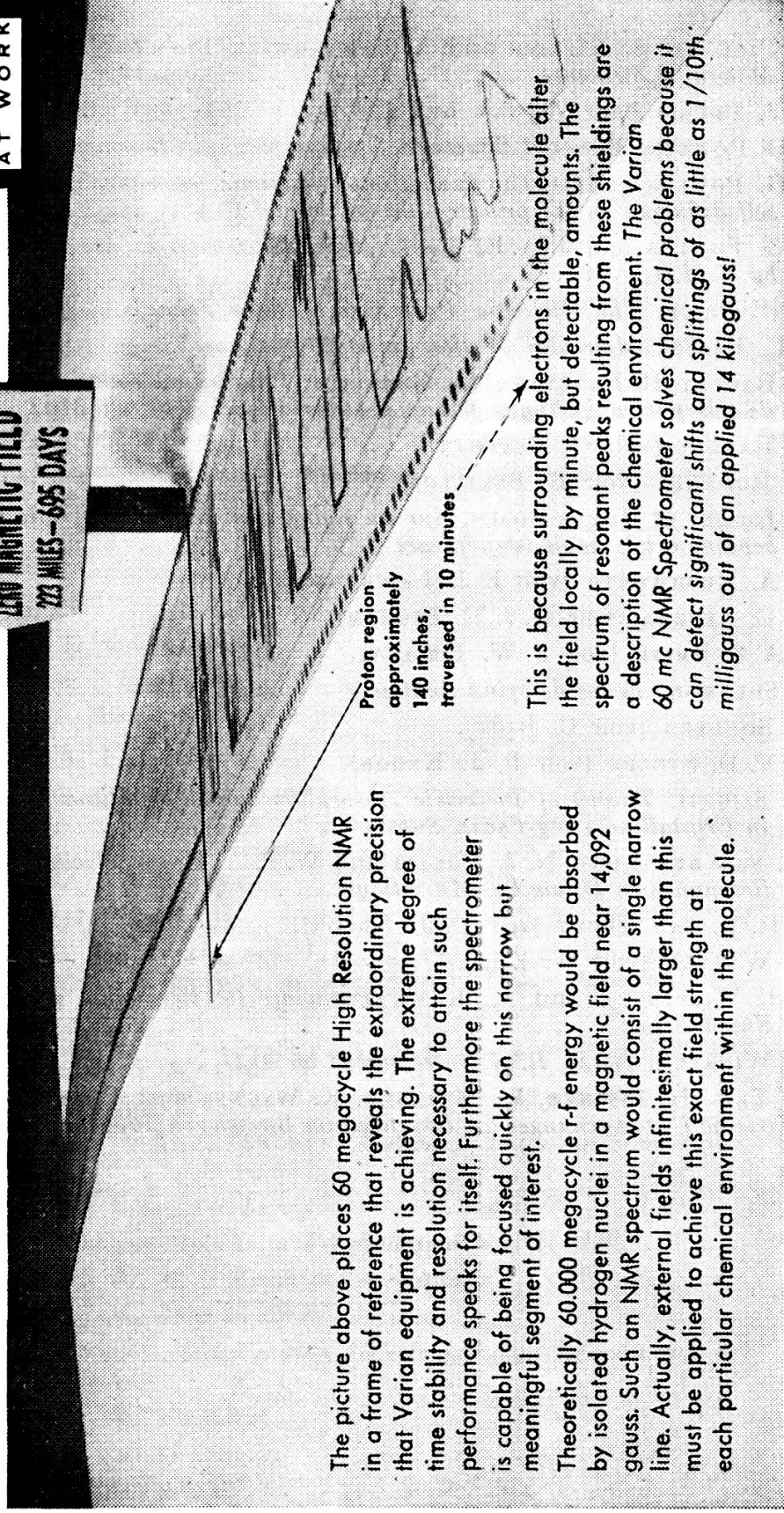
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# NMR IN A NEW PERSPECTIVE

(Nuclear Magnetic Resonance)

57  
N - M - R  
A T W O R K

TO  
ZERO MAGNETIC FIELD  
223 MILES - 695 DAYS



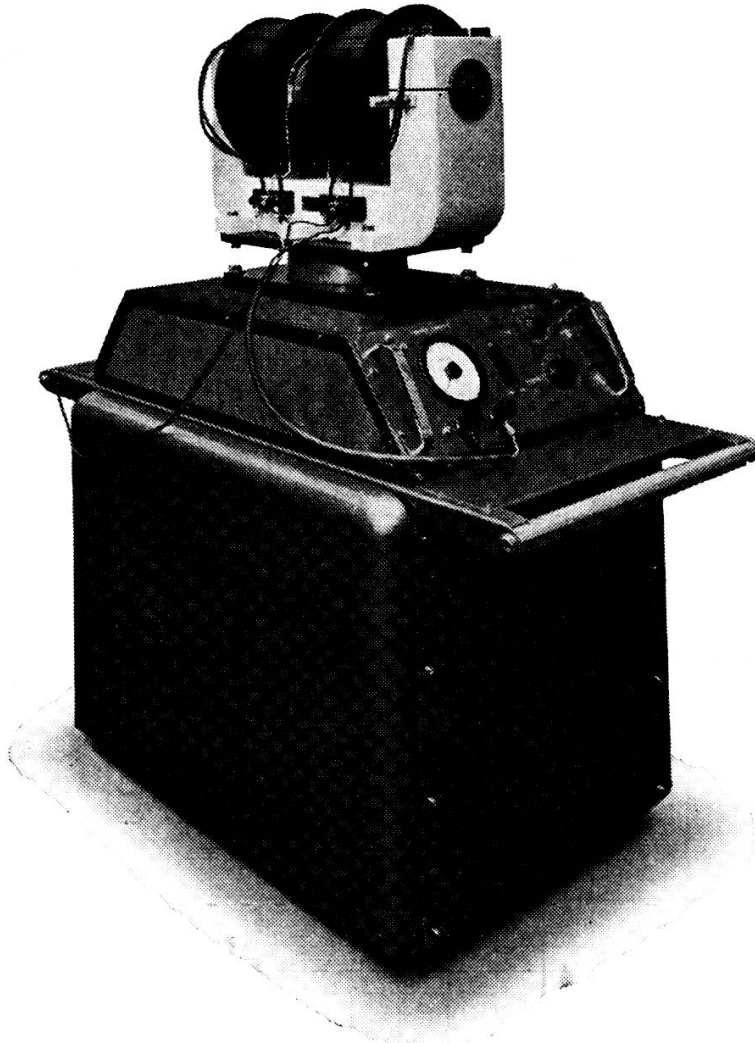
The picture above places 60 megacycle High Resolution NMR in a frame of reference that reveals the extraordinary precision that Varian equipment is achieving. The extreme degree of time stability and resolution necessary to attain such performance speaks for itself. Furthermore the spectrometer is capable of being focused quickly on this narrow but meaningful segment of interest.

Theoretically 60,000 megacycle r-f energy would be absorbed by isolated hydrogen nuclei in a magnetic field near 14,092 gauss. Such an NMR spectrum would consist of a single narrow line. Actually, external fields infinitesimally larger than this must be applied to achieve this exact field strength at each particular chemical environment within the molecule.

This is because surrounding electrons in the molecule alter the field locally by minute, but detectable, amounts. The spectrum of resonant peaks resulting from these shieldings are a description of the chemical environment. The Varian 60 mc NMR Spectrometer solves chemical problems because it can detect significant shifts and splittings of as little as 1/10th milligauss out of an applied 14 kilogauss!



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