the last radio observation and our first observation differed by $\Delta\nu = 0.005$ days^{-1}, which is in agreement with the reported values of the speed-up[6,7] of $\Delta\nu = 0.006$ days^{-1}.

It is obvious from Fig. 1 that the period of 77 days has not been persistent over more than the time span of 150 days of the radio observations.

From the data available until now the nature of the wobble in arrival times with a typical time scale of several months is still vague. The proposed interpretations in terms of a planetary companion[2,10] or free precession[9] cannot be maintained in their simple form. It is not possible to compute reliably the secular values of $\ddot{\nu}$ and the braking index[8] $n = \nu\ddot{\nu}/\dot{\nu}^2$ because $\ddot{\nu}$ is strongly affected by the wobble. Furthermore, it is not known whether the wobble is associated with the speed-up. According to our data there is also the possibility that smaller speed-ups or a wobble of a time scale of about a week is present.

The method proposed by Sutherland *et al.*[11] for deriving the mass of the pulsar from the changes in the frequency and its first two derivatives caused by the starquake at the time of speed-up does not give a reliable value because the change in $\dot{\nu}$ is very small and relatively uncertain.

For these reasons it is important to observe NP 0532 as often and precisely as possible and to publish the absolute times of arrival in the UTC or A1 scale so as to allow a comparison between different observers. It is recommended that geocentric as well as barycentric arrival times be published because it may be desirable to reduce them with changed elements of the Earth's orbit.

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Carrier of the Interstellar 89·190 GHz Line

The unidentified interstellar line discovered by Snyder and Buhl[1] (reported at the IAU general assembly, Brighton) with estimated rest frequency of 89·190 GHz is well within estimation error of the first rotational transition expected for the molecular ion HCO^+. This species is isoelectronic with HCN and is extremely stable. The molecular geometry expected for this ion is linear, with bond lengths $r_{CH} = 1.06$ Å and $r_{CO} = 1.115$ Å. These distances are the CH bond length in HCN and the CO bond length in the ion CO^+. This set of geometric parameters gives a rotational constant $B = 44.623$ GHz. The lowest transition frequency, $\nu = 2B$, is predicted at 89·246 GHz.

The electronic structure of HCO^+ is $^1\Sigma$ and the only hyperfine structure expected is the hydrogen spin rotational interaction whose magnitude is of the order of 10 kHz and therefore much less than the Doppler line width. The observed line appears to be single rather than a component of a hyperfine multiplet.

Fortunately it is possible to test this present speculation. The assignment of 89·190 GHz to $H^{12}CO$ predicts that the analogous transition in $H^{13}CO$ occurs near 86·708 GHz.

The stability of HCO^+ is apparent from the low ionization potential of HCO, namely, 9·88 eV. (The ionization potential of C^{I} is 11·25 eV.) The production of interstellar HCO^+ can proceed by several routes. The reactions

$$H_2^+ + CO = HCO^+ + H$$

and

$$H_2 + CO^+ = HCO^+ + H$$

are observed in the laboratory to have rate constants of 10^{-9} cm^3 s^{-1}. The photochemical production

$$H_2CO + h\nu = HCO + H$$

$$HCO + h\nu = HCO^+ + H$$

can also occur. Obviously the spatial correlation of HCO^+ (if the present assignment proves correct) with H_2CO will be of interest.

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Galactic X-Ray Background Component: the Difficulties with the Inner-Bremsstrahlung

It has recently been claimed[1] that the inner-Bremsstrahlung associated with suprathermal particles can account for the X-radiation at 0·26 keV in the galactic plane observed by Bunner *et al.*[2].

The energy spectrum of the suprathermal particles used in this calculation was obtained by multiplying the observed spectrum by a demodulating factor[3] to take into account the influence of the solar wind. But the self-absorption, which is important for energies of the order of 0·26 keV, was not taken into account. Moreover, the ionization rate ξ of the interstellar gas by these suprathermal particles imposes limits on the energy cut-off of the spectrum and on the particle flux.

The calculation given here shows that when the gas self-absorption and the ionization rate are included, the inner-Bremsstrahlung produces an X-ray flux which is several orders of magnitude smaller than that reported by Bunner *et al.*[2].

For the sake of simplicity, assume that the flux of suprathermal protons is given by

$$J_p(E) = K_p\ \delta(E - E_0) \text{ protons cm}^{-2}\cdot\text{s}^{-1}\cdot\text{sr}^{-1}\cdot\text{MeV}^{-1} \quad (1)$$