inerts in No. 4 seam can probably be reduced by screening and mechanical size reduction.

In Table I it is shown that it is petrographically possible to produce suitable cokes from the No. 2 and No. 4 coals by proper blending with medium volatile coals. Calculations show that a ½ to 1 blend of No. 4 or 2 coal with "Sewell" or "Pittsburgh" coal of the U.S.A. can produce a coke with a stability of 37–46. Since reflectance data along the lines described in this paper are at present not available on Indian coals, it was not possible to make calculations on blends using Indian medium volatile coals. Hence calculations were tried with some American coals, like the "Sewell" and "Pittsburgh" coals.

In conclusion it is suggested that detailed petrographic studies of Indian coals along the lines described above, and followed in the U.S.A. and U.S.S.R., may prove an invaluable criterion in evaluating the coking characteristics of the various Indian coals.

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ANOTHER NEW PARTICLE ?

THE experimental observation on the 2π decay of the K meson reported by Fitch *et al.* of Princeton (*Physical Review Letters*, 1964, No. 13) contradicts the *CP* rule for particle reaction and has led to the postulate of a fifth natural force (see *Curr. Sci.*, 1965, 34, 133). In a recent communication to *Physics Letters* [1965, 14, (2), 131], H. J. Lipkin and A. Abashian of Illinois suggest a possible explanation for the $K \rightarrow 2\pi$ decay which does not violate the *CP* rule. The explanation assumes the existence of a new particle, another K° meson which is degenerate in mass with the ordinary K°.

The experimental observations involved are the following: According to an earlier observation of Leipuner *et al.* (*Physical Review*, 1963, 132, 2285), Decay rate $K^\circ \rightarrow 2\pi$/(Decay rate charged K° 2) = 0·06, for 1 GeV/c. K° at 8 ft. from target, while according to the Princeton group this branching ratio is 0·002, for 1 GeV/c. K° at 60 ft. from target. The large difference between the two decay rates is not easily interpreted if both results are due to *CP* violation or a new external field.

A natural explanation attributes the observed 2π decay to a neutral particle different from K°_1 and K°_2 and having a different lifetime from either of the two. Lipkin and Abashian estimate this lifetime as 7×10^{-9} sec., and account for the observed difference above to the exponential decay between 8 ft. and 60 ft.

An alternative assumption, the authors point out, is that this neutral particle is almost exactly degenerate with K° and anti-K°, and mixes with them in the decay process. The best test of this hypothesis seems to be further measurements of the long-lived $K \rightarrow 2\pi$ decay at different distances from the target.—[*Physics Letters*, 1965, 14 (2), 151.]