measurements of the distances made on molecular models.

In summary, the rate constant for triplet excitation transfer in I (25 sec^{-1}) is about 1000 times greater than in II (0.040 sec^{-1}). The transfer distance is about the same in both cases. The mechanism suggested by these results involves spin–orbital coupling to the singlet system in the donor chromophore combined with dipole–dipole coupling between the singlet systems of the two chromophores and spin–orbital coupling back to the triplet system in the acceptor chromophore. The difference of 1000 in the rate constant for transfer is the result of the large difference in spin–orbital coupling between III and IV which is exemplified by the large difference (again a factor of 1000) in their phosphorescent lifetimes. A mechanism involving exchange integrals would not be expected to lead to such a large difference in the transfer properties of the two compounds. Also, it is unlikely that an exchange integral mechanism could be operative at such large distances.

A more complete description of these measurements is currently in preparation.

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Preparation and Properties of Monocesium Chloroxenate ($CsClXeO_3$)[1]

Sir:

We wish to report preparation of a stable, crystalline cesium xenon(VI) compound containing chloride similar to the cesium fluoroxenate ($CsFXeO_3$) reported by Selig[2] and Spittler, *et al.*[3] The crystalline cesium chloroxenate can be prepared either from aqueous solutions at pH 8 to 9 or from acetonitrile. A crystalline precipitate is obtained by mixing ice-cold solutions of approximately 2.0 ml of 1.5 *M* cesium chloride with 0.4 ml of 1.5 *M* xenon trioxide or by adding xenon trioxide to cesium chloride dropwise until permanent turbidity appears. Then the solution is left in the icebox for approximately 3 hr. The supernatant solution is sucked off, and the crystals first are washed with several portions of ice-cold water and finally with acetonitrile. The contents are dried in a vacuum desiccator. Preparation of cesium chloroxenate must be carried out in slightly alkaline medium otherwise chloride is oxidized to chlorine oxides and forms highly explosive solutions. Crystalline cesium chloroxenate also can be prepared by mixing approximately equal volumes of 0.1 *M* cesium chloride and 0.1 *M* xenon trioxide dissolved in moist acetonitrile. The precipitation in acetonitrile is less dependent on pH, but is more subject to coprecipitation of the reagent which is present in excess. The resulting precipitate compares well to the aqueous preparations: infrared spectra and analyses are almost identical.

The chloride in the cesium chloroxenate is determined by Fajans method after the decomposition of xenate with dilute hydrogen peroxide. Cesium is determined either as cesium perchlorate or indirectly as cesium chloride titrimetrically, and the oxidation equivalent is determined iodometrically by "hi–lo" titration. The analyses of chloride, cesium, and oxidation equivalent yield the empirical formula weight 347, 348, and 344, respectively, as compared to the calculated formula weight 346.5 for $CsClXeO_3$.

Cesium chloroxenate is considerably more stable than xenon trioxide. It loses some xenon and oxygen at approximately 150° and on further heating evolution of xenon and oxygen diminishes. At temperatures higher than 190°, xenon and oxygen are evolved rather rapidly and the sample explodes at approximately 205° *in vacuo*, leaving cesium chloride residue. Cesium chloroxenate is shock sensitive and should be handled with care. Cesium chloroxenate, upon addition to concentrated sulfuric acid, yields chlorine, chlorine oxides, oxygen, and xenon.

Crystalline cesium chloroxenate shows a number of infrared bands at 818 (s), 793 (s), 766 (m), 749 (m), 663 (w), and 400 (m) cm^{-1}. The strong bands at 818 and 749 cm^{-1} are similar to cesium fluoroxenate at 807 and 757 cm^{-1} as reported by Selig.[2] The X-ray powder diffraction pattern is different from cesium chloride and xenon trioxide calculated *d* values.[4] However, the general pattern of lines resembles that of $CsFXeO_3$ as prepared in our laboratory.[3] The *d* spacings for the $CsClXeO_3$ are: 4.03 (w), 3.82 (m), 3.34 (m), 3.20 (w), 2.68 (m), 2.34 (m), 2.00 (s), and 1.74 (w) A. (Some of these weak lines may be due to the decomposition of crystals in the X-ray beam as has been observed in the study of various xenon(VI) compounds.)

We are continuing our investigations on the nature of the halide interactions with xenon trioxide.

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(2) H. Selig, *Inorg. Chem.*, **5**, 183 (1966).

(3) T. M. Spittler, B. Jaselskis, and J. L. Huston, presented at the 153rd National Meeting of the American Chemical Society, Miami, Fla., April 1967.

(4) D. H. Templeton, A. Zalkin, J. D. Forrester, and S. M. Williamson, "Noble Gas Compounds," H. H. Hyman, Ed., University of Chicago, Chicago, Ill, 1963, p 229.

Dibenzoequinene. A Novel Heptacyclic Hydrocarbon from the Photolysis of [2.2]Paracyclonaphthane

Sir:

In a recent communication[1] we reported that [2.2]paracyclonaphthane (I)[2] undergoes photosensitized autoxidation to form the dibenzo dimethoxy polycyclic system II. We have now found that, in the presence of ultraviolet light,[3] I is converted to the novel hydrocarbon IV, "dibenzoequinene."[4]

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(1) H. H. Wasserman and P. M. Keehn, *J. Am. Chem. Soc.*, **88**, 4522 (1966).

(2) D. J. Cram, C. K. Dalton, and G. R. Knox, *ibid.*, **85**, 1088 (1963).

(3) In our initial dye-photosensitized autoxidation studies we used a 150-w floodlamp as light source. This was replaced by a sunlamp in order to decrease reaction time and improve yields. Compound IV was observed as a minor product in the photosensitized autoxidations