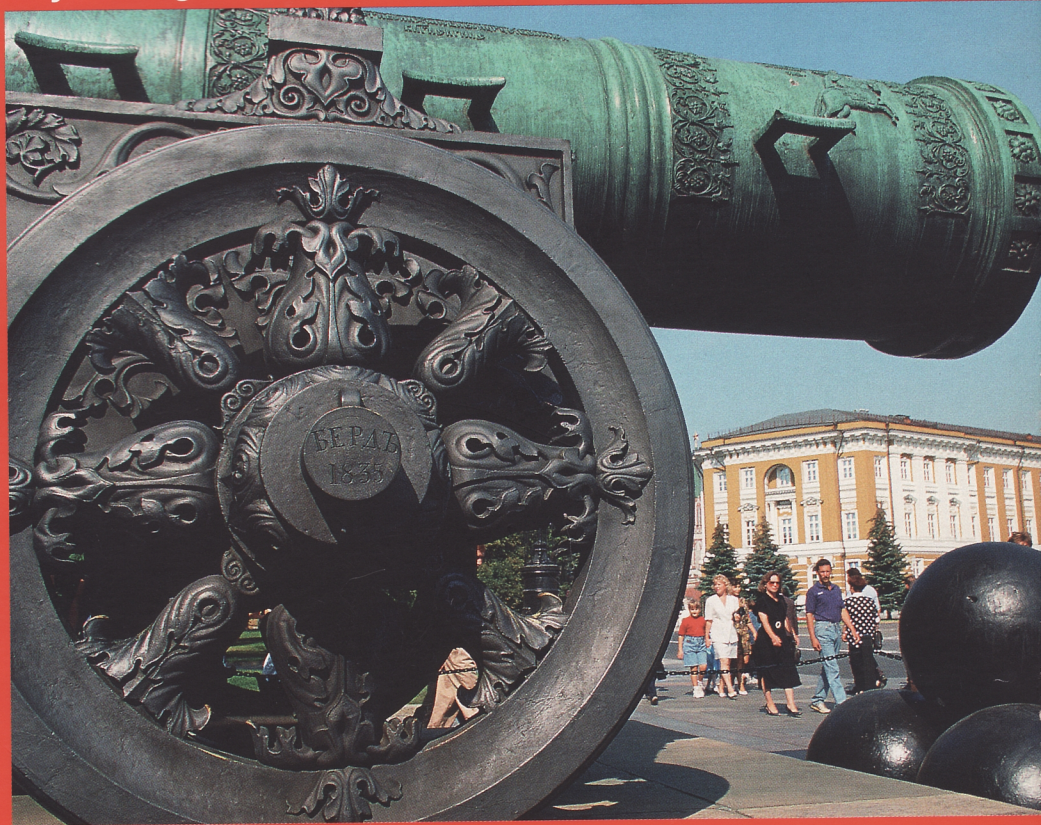


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## THE 1-BROM-2-PHENYLETHENE AND (1-PHENYL-2-BROMETHENYL)DIPHENYLPHOSPHINE PHOTODIMERIZATION IN HEXANE

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Photochemical reactions as a result of UV-irradiation (254 nm) of 1-brom-2-phenylethene (I) and (1-phenyl-2-bromethenyl)diphenylphosphine (II) in hexane were studied by methods of absorption and luminescence spectroscopy. It is discovered that after the irradiation of I absorption spectrum changed and intensive luminescence (340-410 nm) appeared. Formation of 1,4-diphenylbutadiene as a result of this photochemical reaction is confirmed by the comparison of spectra of irradiated solution I and corresponding spectra of the latter.

Similar spectral changes were observed after the irradiation of solution II. In absorption spectrum maximum of short-wave band is shifted from 220 nm to 230 nm, and absorption in the region of 270 nm decreases, that (as it was cleared up by model experiments) is concerned with phosphorus photooxidation. Besides new weakly intensive absorption band appears in the near UV- region ( $> 300$  nm), which belongs to the reaction product.

The intensive luminescence (380-500 nm) appeared. The emission spectrum band has peak at 412 nm and shoulders at 390 and 430 nm. The luminescence excitation spectrum, that in this specific case (low optical density) is close to the adsorption spectrum of final product, has peak at 345 nm and shoulders at 303 and 318 nm. The oxidation of phosphorus takes place in the process of photoreaction. Spectra of photoreactions products are similar, except the long-wave shift of luminescence of product of II irradiation ( $2,400 \text{ cm}^{-1}$ ).

From the above data one can suppose that as a result of UV-irradiation action photodimerization of II with formation of 1-4-bis(diphenylphosphoroyl)-1,4-diphenyl-1,3-butadiene takes place.

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