in libraries as a reference source, and should be of special interest to dermatologists, surgeons, and oncologists with interest in these neoplasms.

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In 1970, the late James McDonald, atmospheric physicist at Arizona, first brought forth concern for the earth's UV-protecting layer of the stratospheric ozone. He became concerned that the output of water vapor from Supersonic Transport Aircraft flying in the stratosphere would combine with the ozone layer in a chain reaction, thereby increasing the UV in the 290 to 320 range (UV-B) which would lead to an increase in skin cancer. Skin cancer is not the most serious biological effect of increases in UV-B. Crop damage and plankton, and perhaps insects, would have much farther-reaching economical effects, but skin cancer epidemiology provided a biological system with manageable and known numbers which could be used as the basis of evaluating hazards in a quantitative way.

Since 1970, several additional technological hazards to the ozone layer have been identified. They include the effects of increases in nitrogen fertilizers, space shuttles, bromine, nuclear warfare, and chlorofluoromethanes. The chlorinated and fluorinated methanes, most familiarly known by the DuPont trade name of Freons have become widely used for their superior qualities in mechanical refrigeration and as a biologically inert propellant for paints, medications, and underarm deodorants. The chlorofluoromethanes (CFMs) were considered biologically inert and nontoxic materials. The accumulation of these compounds in the atmosphere, because of their infrared absorption, retards heat loss from the earth and adds to the "greenhouse" effect of increased CO₂ from combustion. While the CFMs are generally inert in the atmosphere, they gradually diffuse up into the stratosphere where their chlorine is released by the photochemical action of the UV-C wavelengths found there. The report discusses the role of "odd" nitrogen and chlorine compounds in destroying ozone by long-chain reactions. The nitrogen oxides react with thousands of molecules of ozone. The ozone layer varies according to season and latitude from about 23 to 45 cm when reduced to sea level pressure and temperature. The optics of gases are such that a percent decrease in ozone leads to exponential increases in the transmitted UV-B.

This small monograph by the Committee of the National Academy of Sciences on the Impacts of Stratospheric Change had not only the advantage of all the studies done for other stratospheric hazards, but also a greatly increased knowledge of the epidemiology of skin cancer in relation to UV. When the hazards first came up, skin cancer was dismissed as "easily cured," even though this applies only to technologically advanced countries, and hence a minor hazard compared to the benefits of supersonic air travel. The new findings which are emphasized in this report are not only that basal and squamous cell cancer have been on the increase, but that malignant melanoma has been on the increase and shows the same latitudinal relationships that basal and squamous cell cancers do. An extremely important point brought out and illustrated in this monograph is that malignant melanoma occurs not only in the areas of skin directly exposed to sunlight, but also in the areas partially protected from sunlight by clothing.

The authors discuss other biological hazards, such as the probability that plankton and many other organisms would be exposed to increased and damaging UV-B without any sensing mechanism for this hazard. They discuss the relative impact of eliminating spray cans while retaining the health-beneficial aspects of refrigeration. This is not a scare report put out by "eco-freaks" to alarm industry, but a balanced evaluation of a serious environmental hazard. It and the book by Giese on "Living with Our Sun's Ultraviolet" are recommended reading for both physicians and their concerned patients.

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