Condensation of this thiohydantoin derivative with benzaldehyde and subsequent treatment with alkali yields benzal thiohydantoin (D), and the formation of this product demonstrates[5] the presence in the original peptide of a glycine group with free carboxyl. Other considerations, not yet ripe for discussion here, suggest that a free carboxyl group belonging to cysteine is not also present. The formation of two thiohydantoin rings in the first condensation product (C) would also confirm the existence of a free α-carboxyl group in the glutamic acid residue of glutathione.

It is interesting to note that structures A and B, with a slight preference for B, were chosen by Pirie and Pinhey[6] on the basis of dissociation constants deduced from results obtained in the titration of glutathione.

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TRANSMISSION CHANGES IN ULTRA-VIOLET GLASSES DURING HIGH TEMPERATURE EXPOSURE TO LIGHT

THE recent keen interest in glasses transparent to ultra-violet radiation, and particularly the papers by Shrum, Patten and Smith[1] and by Stockbarger[2] in which are described certain phosphorescent and thermoluminescent properties of such glasses after exposure to ultra-violet light, suggest that some recent observations by the writers may be of interest to workers in this field.

It is well known that when some of these glasses are exposed to strong ultra-violet radiation, their transparency for the short wave-lengths is considerably decreased. It is also known that heating the solarized glasses restores them to their original condition.

In some recent experiments with several of the well-known brands the writers found that, if the specimens of glass were attached directly in contact with the hot tube of the mercury arc lamp and thus were kept at a high temperature (about 450° C.) during the ultra-violet exposure, there was no decrease in the short wave transmission, but instead, a marked increase. With one glass the shortest wave-length transmitted when new was 2535A. After solarization at atmospheric temperature, two feet from a quartz mercury arc, the transmitted spectrum was so shortened that 2620A was the low wave-length limit. When the glass, during exposure, was kept hot, the result was a very marked increase in transmission, so that wave-length 2460A was distinctly visible in the spectrogram of the transmitted radiation. This same result was obtained whether the glass had been previously solarized or not. In all cases the transmission spectra were photographed immediately after the ultra-violet exposure, the glass having cooled to room temperature. A condensed iron spark was used as the light source for testing the transmission.

All these specimens were then "annealed" in the dark at various temperatures, first at 200°, then successively at 300°, 350°, 400° and 450° C. After each annealing the glasses were cooled and their transmission spectra photographed. Even at 200° there was, in every case, indication of return toward the transmission of the original, new glass. This became more marked with increasing temperatures, until, after the 450° treatment, all had completely recovered the original condition.

On account of the fact that during the hot ultra-violet exposures there was only a line contact between the flat glass and the cylindrical lamp tube, the specimen was not uniformly heated. Examination (after cooling) with a low power polarizing microscope, between crossed nicols, showed severe strain in the glasses. This was also relieved by the subsequent annealing but had disappeared completely only after the last (450°) anneal.

Not all the ultra-violet glasses behaved in the way described. One in particular showed only a barely detectable decrease in transmission on low temperature exposure, and no change whatever after exposure in contact with the lamp tube.

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