and to remove such reservoirs. The majority of disinfectants tested at the chosen concentration appeared to be highly effective in this respect. The tests were carried out by using one concentration of disinfectant on terrazzo flooring in one ward, and it is possible that different results might be obtained under other conditions. In the selection of a disinfectant for floor treatment its activity against the range of pathogens in the reservoir, its safety, acceptability in use, aesthetic results, and cost must be considered; the type of flooring is also relevant, because materials used for flooring may be damaged by some compounds. Some disinfectants which were highly active against *Staph. aureus* but less active against *Ps. aeruginosa* in laboratory tests were effective in field tests, and our experiments suggest that *Ps. aeruginosa* could be successfully removed from surfaces by cleaning with these agents; as a result of their high death rate on drying, these organisms, when present in floor dust, are very scanty and are probably further depleted by the evaporation of solutions used for disinfecting the floor. Chlorine compounds, though better than soap and water, were less effective than the best of the disinfectants. Phenolic compounds varied in their effectiveness; the best of these, however, showed highly satisfactory results both in laboratory and in field tests.

Toxicity will also affect the choice of a disinfectant; many phenolic compounds—for example, Lysol and to a less extent Sudol—and tri-*n*-butyltin compounds may be corrosive, particularly in high concentration, and should be handled with care.

In testing the effectiveness of a new method of disinfection it is perhaps reasonable to require that it shall reduce the total floor bacteria on areas protected from recontamination by about 95–99%, or to fewer than 15 bacterial colonies and less than one colony of *Staph. aureus* per impression plate.

Summary

After preliminary assessments of bactericidal action by 14 disinfectants, the ability of selected agents to remove bacteria from hospital-ward floors was studied and compared. The disinfectants included phenolic, quaternary ammonium, and ampholytic compounds, a tri-*n*-butyltin compound, a chloroxylenol, chlorhexidine, iodophors, chlorine compounds and cleaning powders, and 70% ethyl alcohol.

Impression-plate samples showed little or no reduction in total bacteria or in *Staph. aureus* on exposed floors after washing or disinfection; but when an area of floor was protected from recontamination by inverting an open box over the area, large reductions in total bacterial counts were found, and *Staph. aureus* was reduced or eliminated after such treatment. Soap and water caused a mean reduction of 80% and disinfectants caused a mean reduction of 93–99% in bacterial counts on areas protected from recontamination. These effects were highly significant, as were the differences between detergent washing and disinfection; significant differences between certain disinfectants were also found. All of these treatments caused a much larger reduction in bacteria than had been found in earlier studies with dry methods (vacuum cleaners and oiled mops).

Since the benefits of disinfection are frustrated by recontamination, it is necessary also to reduce the access of bacteria by air and by contact if floors are to be kept bacteriologically clean.

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Obstruction of Vehicle-drivers' Vision by Spectacle Frames

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Dr. G. F. Taylor (*Brit. med. J.*, 1964, **2**, 1597) has drawn attention to the restriction of vision which is imposed by certain modern kinds of spectacle frame. Personal observation made by us has also revealed that some drivers wearing spectacle frames with wide shafts and lens mounts were occasionally unaware of overtaking traffic.

It was therefore decided to carry out a simple objective and subjective investigation of the relative effects of different kinds of spectacle frames. Fourteen types were selected from the stock of a retail optician. The choice was made with the advice of the manager, Mr. Pipe, of the Hay Hill branch of Messrs. Newbold, because he was aware of those frames which are currently popular for both ordinary and sun spectacles. The selected items included examples of most of the frames supplied through the National Health Service.

These frames vary widely in the subjective obstruction to vision, which clearly will depend on different eye positions. It was thought that from the point of view of driving the worst effects would be due to the obstruction of central rather than peripheral vision, since much of the peripheral field is obstructed by the surrounding car body. It is known that in Great Britain 10% of vehicle accidents occur following manœuvres which involve turning right, either from a standstill position at the roadside or during overtaking manœuvres, as well as turning across oncoming traffic at a crossroads or

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Y- or T-junction. Under these circumstances it is usually necessary to ensure the absence of overtaking vehicles by turning the head and eye to look back along the road.

The effects of the selected spectacle frames on the kind of view described were demonstrated by photographing subjects wearing the different types of frame, seated, and looking back at a camera mounted at eye level as though at a car behind them. The camera was placed some 8 ft. behind the subject and about 160 degrees from the fore-and-aft axis of the subject's chair (Fig. 1). One of the persons performing this manœuvre and wearing the different kinds of spectacles is shown in the accompanying photographs.

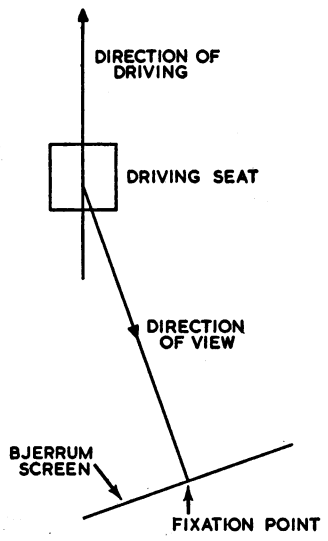


FIG. 1.—Position of subject in relation to camera.

From inspection of the photographs it is found that there is a great variation in the obstruction to this kind of view caused by the frame, and also that there is a further variation in the way the head is held by different subjects. As there is no perimeter in existence that would enable one to map fields with the subject's head in the turned position, ordinary perimetry could not be used to measure the gaps in the fields of view in this particular circumstance. Instead, the amount of obstruction within an angular radius of 25 degrees from the fixation area was plotted, using a tangent (Bjerrum) screen. Subjects were seated in a position comparable with that which they had in relation to the camera, and looked backward in the same way at a target moved about the screen. The obstructed portions of the field of view were mapped out, a target-size of 12 mm. being used. Only four types of frame were employed in this part of the experiment, since they were thought to cover all the points of interest. The results are shown in the diagrams alongside the frames to which they refer (Fig. 2).

Discussion

Both the photographs and the measure of visual fields suggest that some spectacle frames offer practically no obstruction to view, and that others have an effect which may not only interfere with peripheral vision but, with some head and eye positions, reduce the central field to a marked degree. Thin metal frames have no demonstrable effect, nor do those prescribed under the National Health Service seem to cause much obstruction, an exception being those in which the side-pieces are attached at the middle rather than at the top of the lens mounts.

Other design factors can affect the field of view. Two pairs of sunglasses, which were thought to be so similar that separate measurement would not be required, differed slightly in the size of the lens apertures and in the curvature of the front (Fig. 3). The combination of these two features has a marked effect on the amount of obstruction to vision.

Some spectacle frames, with the lower part cut away and otherwise fairly satisfactory, cause a relatively large area of obstruction because of a claw-like downward projection of

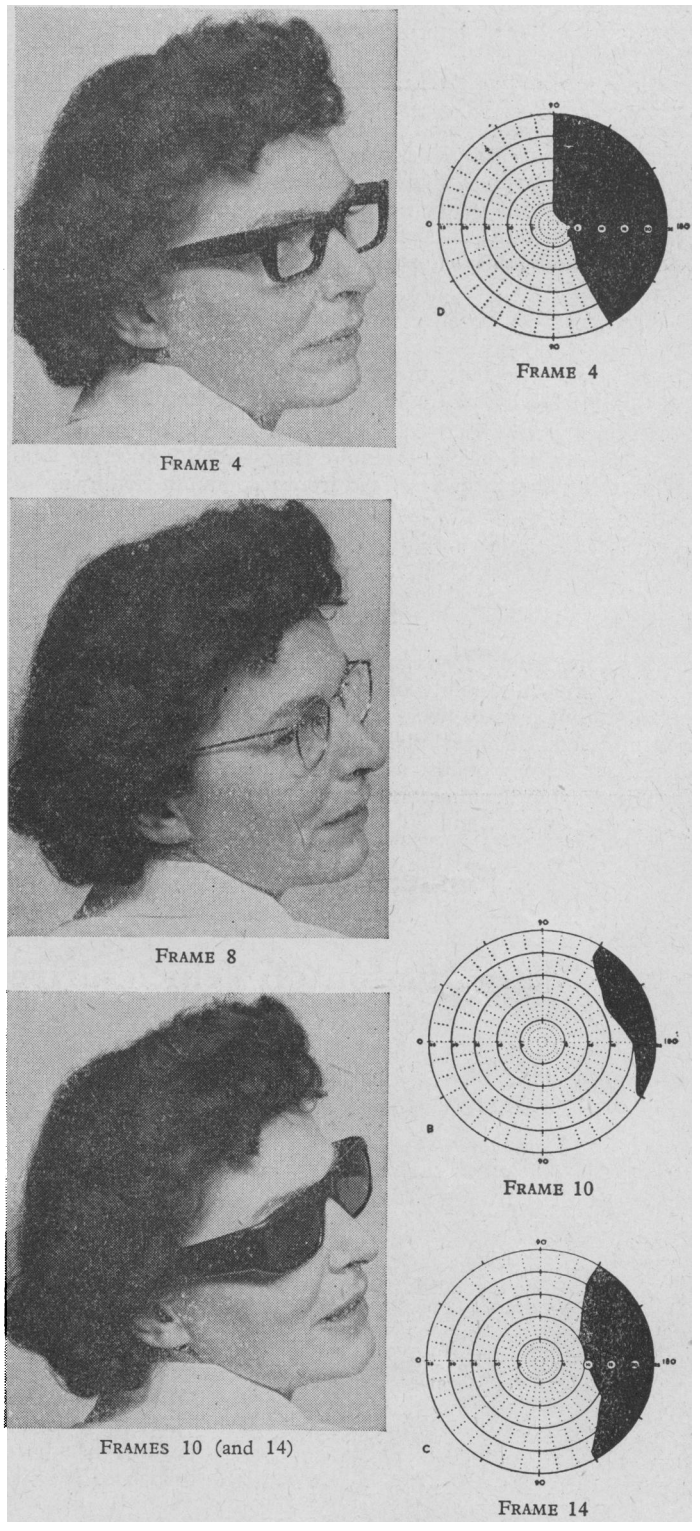
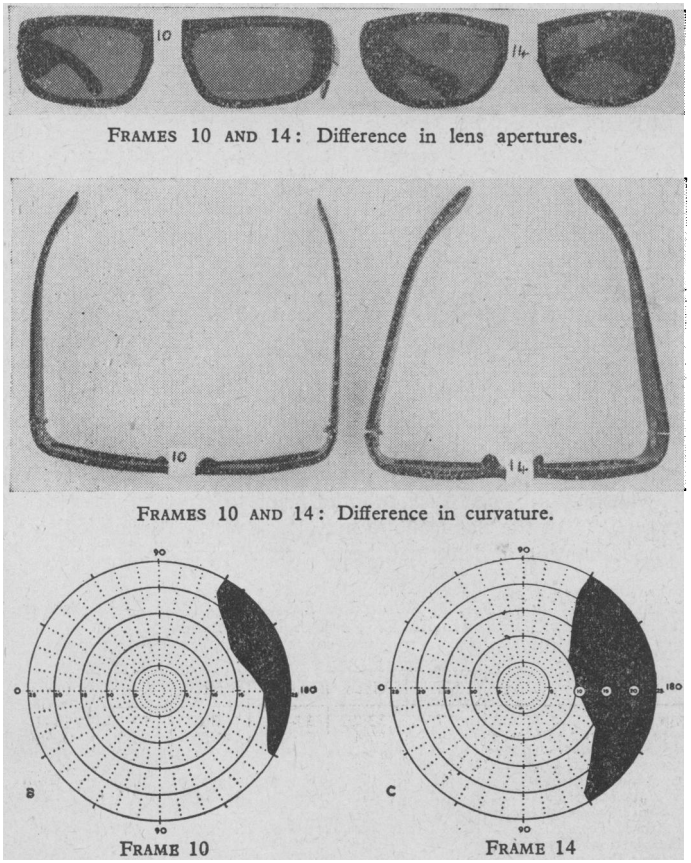


FIG. 2.—Frame 4: position of subject; obstruction. Frame 8: no obstruction. Frames 10 (and 14); obstruction.

the lens mount below the point of attachment of the sides (Fig. 4).

It follows that some kinds of spectacle frame could contribute to the cause of vehicle accidents that seem to be due to unawareness.



FRAMES 10 AND 14: Difference in lens apertures.

FRAMES 10 AND 14: Difference in curvature.

FIG. 3.—Differences in obstruction according to size of lens apertures and curvature of the front.

FIG. 4.—Relatively large area of obstruction.

Summary

Fourteen different kinds of spectacle frame were examined from the point of view of their obstruction when a driver looks backwards for information about traffic behind. A series of photographs were taken of three subjects wearing the spectacles and looking backwards over their right shoulder. Examination of these photographs shows that spectacle frames with wide shafts, thick lens mounts, and low attachment of the side-pieces can produce partial or total obstruction of the pupil and therefore of vision. This finding is confirmed by measurement of the field of view, a tangent screen being used. The investigation seems to reveal that certain kinds of ordinary and sun spectacle frames can, under certain circumstances, cause marked obstruction to vision and should not be worn by drivers.

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Classical and El Tor Cholera: A Clinical Comparison*†

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A cholera pandemic caused by the *Vibrio cholerae* biotype El Tor (El Tor cholera) started in South-east Asia during 1961. This vibrio, when first isolated in 1906, was believed to be non-pathogenic (Gotschlich, 1906), and subsequently was thought to produce only a mild diarrhoeal disease. Recent experience has suggested no clinical difference between the diseases caused by classical *V. cholerae* (classical cholera) and *V. cholerae* biotype El Tor (deMoor, 1963). We are unaware of any simultaneous and comparative clinical studies confirming this speculation. Furthermore, the clinical similarity must be fully appreciated for purposes of effective treatment, just as any bacteriological and epidemiological differences should be recognized for purposes of effective control (Mukerjee *et al.*, 1965).

Classical cholera has long been endemic in the Gangetic Delta, with frequent and severe epidemics. An El Tor vibrio was first isolated from a typical case of cholera in Calcutta on 1 April 1964 (Barua *et al.*, 1964; Mukerjee, 1964). Over the succeeding two months this biotype became established as the predominant pathogenic vibrio in the area. A unique opportunity was thus afforded to compare the diseases caused by these two organisms under identical conditions and without prior knowledge of the offending agent.

Material and Methods

The present observations were made during a study designed to evaluate, under controlled conditions, the effect of small

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