at variance with this is the finding of Cartwright and Ward (1968), who asked about the family planning advice offered by 232 general practitioners in Sheffield, England. They found a significantly greater response $(90 \% v .73 \%)$ to a short as opposed to a longer questionnaire. However, the questionnaires differed appreciably in content and precision of required responses.

There were two components to 'personalization': stamping $v$. franking and verbal personalization. With respect to the former, $\operatorname{Scott}$ (1961) found a difference in favour of the $\operatorname{stamp}(93 \cdot 3 \% v .89 \cdot 2 \%)$, statistically significant on the large numbers in his study. Robinson and Agasim (1951) found a significant difference in favour of the stamp $(73.8 \%$ v. $66.3 \%$ ), but it is not clear that the study groups were comparable. They also found that the difference resulted from a poor return of franked envelopes from small towns where many of the franks were covered by a stamp. Clausen and Ford (1947), on the other hand, in a small study (no details given) reported no difference in response with stamped $v$. franked envelopes. There may be an advantage to stamping rather than franking but it is probably small. With respect to verbal personalization Clausen and Ford (1947) found no difference in response between veterans receiving a letter with an inside address and personal salutation and comparable veterans receiving the same letter with no inside address and the salutation 'Dear Veteran'. The present data do not allow separation of the effects of stamping from verbal personalization but they strongly suggest no appreciable difference in personal $v$. impersonal as used.

It seems reasonable to conclude that the 'instrument' (the form of the letter, its accoutrements and enclosures) makes little difference in response. It also seems that when a specific characteristic of the instrument is associated with differing response rates (e.g., the presence of the question on schooling) it is largely due to one subgroup of recipients (the Worcester elderly). Cartwright (1964) found that the addition of a question on schooling to a one-item questionnaire on hospitalization reduced response from $\mathbf{9 3 . 6 \%}$ to $\mathbf{9 0 . 7 \%}$. It is not stated whether the lower figure was due to a particularly low response from a sub-segment of the population, e.g., the elderly.

Both the present studies show a decreasing response with increasing age. The second study suggests also that the social class of the recipient is important as Newton is a rather prosperous suburb of Boston whereas Worcester is a large city with a cross section of social classes. Neither con-
clusion is original but they have not been clearly documented in the past.

The value of the present studies lies in their placing in perspective the relative importance of the instrument and the characteristics of the target population in determing response. This is not to say that elderly or lower social class persons would always respond poorly-perhaps questionnaires concerned with matters other than health and disease would elicit a reversal of these findings. Nonetheless, it seems that money and effort spent in personalizing and 'improving' a mail instrument may not yield comparable improvement in response rate.

## Summary

Two studies of the determinants of response rates of Massachusetts women to postal questionnaires are described. They suggest that the characteristics of the target population are more important than the instrument in determining response rate.

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## REFERENCES

Cartwight, A. (1964). Human Relations and Hospital Care. Routledge and Kegan Paul, London.
——, and WArd, A. W. M. (1968). Variations in general practitioners' response to postal questionnaires. Brit. J. prev. soc. Med., 22, 199.

Clausen, J. A., and Ford, R. N. (1947). Controlling bias in mail questionnaires. J. Amer. statist. Ass., 42, 497.
Robinson, R. A., and Agasim, P. (1951). Making mail surveys more reliable. J. Marketing, 15, 415.
Scott, C. (1961). Research on mail surveys. J. roy statist. Soc., Series A, 124, 143.
Sirken, M. G., Pifer, J. W., and Brown, M. L. (1960). Survey procedures for supplementing mortality statistics. Amer. J. publ. Hlth, 50, 1753.
Sletto, R. F. (1940). Pretesting of questionnaires. Amer. sociol. Rev., 5, 193.

## Correction

On page 164 of the August issue of this journal equation (1) should read

$$
\begin{equation*}
\chi^{2}=\frac{\left(\left|\Sigma m_{1}-\Sigma \mu_{1}\right|-0.5\right)^{2}}{\Sigma \sigma_{1}^{2}} \tag{1}
\end{equation*}
$$

