Correspondence

Cotton workers and the Manchester criteria

SIR,—The editorial on the effects after acute and chronic exposure to cotton dust (1987;44:577-9) seems to have been based on a biased selection of published evidence. It contains several crucial statements that must be challenged.

"Prospective studies of active and retired cotton workers... show a greater than expected annual decline in baseline FEV₁." This statement is supported by a single reference and this is to a follow up study conducted by two of the authors of the editorial.¹ The work cited had been based on a selected group of claimants for disablement benefit under the National Insurance (Industrial Injuries) Act 1946. Such subjects are totally unrepresentative of textile workers as a whole and in the words of the authors themselves are "a biased sample." Furthermore, the FEV₁ of these claimants is shown to have compared unfavourably with estimates predicted from data reported by Cotes.² The original report of the data used by Cotes³ makes it clear that his figures do not relate to "the population as a whole" but to healthier than average subjects selected out of several population samples. The use of such doubly biased materials as a basis for comparisons which lead to the setting of criteria and the ignoring of much other published evidence is unacceptable.

"There are conflicting data concerning increased mortality." No reference is cited but the statement is a rather dismissive summary of a number of follow up studies of textile workers⁴⁻⁵ (and SM Daum *et al*, XVII International Congress on Occupational Health, Brighton 1975), none of which gives evidence of an increase in mortality. Furthermore, in interpreting the available evidence, it should be borne in mind that in virtually every other condition respiratory function is an exceedingly powerful predictor of mortality and even conditions with only a small effect on lung function have a substantially raised mortality.⁶

"Some studies suggest that an air flow limitation may persist several years after the cessation of exposure." Again only one reference is given⁷ and this is to a poorly designed and poorly conducted study that has been criticised elsewhere.^{8,9} Among other uncertainties in this work there is evidence of serious selection: the response rate of a defined group of exposed workers was only 40% and these were supplemented by self selected workers recruited by "word of mouth" from a group of unknown size. The use of such evidence in the formulation of criteria is, again, unacceptable.

It seems remarkable that the authors of this editorial

chose to ignore other studies, including a recent large, carefully designed study of ex-cotton workers in Lancashire⁹ which examine the problems considered by the editorial. The authors also chose to ignore evidence from a detailed and extensive study of ex-flax workers,¹⁰ much of which is at variance with statements in the Editorial. This omission is all the more remarkable because the first sentence of the editorial refers to symptoms in cotton and flax workers and the final sentence implies that results from research on cotton workers are applicable to workers with other organic dusts.

The authors state that "enough information is available to characterise the acute and chronic symptoms that follow exposure to high dust concentrations." Yet, having judged that there is "enough" information the authors proceed to select the evidence they consider in a patently biased way.

P C ELWOOD

*MRC Epidemiology Unit (South Wales),
4 Richmond Road,
Cardiff CF2 3AS.*

Dr Rylander and co-workers reply:

Our editorial has achieved its objective in stimulating interest and our proposal to systematise the various symptoms seen after exposure to cotton dust has not been challenged. It has, moreover, been well received by other research groups.¹¹ The space in an editorial is too limited for a full discussion of the various reactions to cotton dust. In judging the evidence given for an effect to be present or not, the study methods used have to be borne in mind—for example, choice of population, selection methods, and representativeness and exposure levels at the time of induction of the effect. The different opinions expressed over many years on the effects of exposure to cotton and flax dust on mortality and annual decline in baseline FEV₁ may be explained by methodological differences and changes in levels of dust exposure.

The paper on flax workers to which Elwood refers¹⁰ indicates that exposure to dust did have a small adverse effect on lung function. It is dismissed as unimportant by the authors who draw similar conclusions from their study of ex-cotton workers.⁹ Both studies have the same defect to which attention has been drawn in a previous letter.¹² Disabling byssinosis is generally confined to those who have had long exposures and not all those exposed are affected. Evidence of disability is likely to be lost unless workers who have had symptoms of byssinosis are considered separately; this, Elwood and his co-authors have not done. For this reason we did not refer to their studies.

An important defect in many follow up studies is the loss of subjects. This occurred in the study to which Elwood refers; 40% were lost at follow up six years

later. Whereas it would be difficult to explain gross differences in the annual decline of FEV₁ of 30 ml/year and 15 ml/year respectively for cotton workers and controls as being due to bias, it does not give a definite answer to the question, What is the extent of permanent loss of lung function caused by long term exposures to dust?

Thus we emphasise the need for longitudinal studies; in particular, to find out whether or not the low levels of dust exposure now being achieved in many cotton mills in developed countries cause any permanent loss of lung function.

We think that it was right to emphasise the adverse effects of cotton dust, particularly as they are likely to occur in textile factories without effective dust control.

References

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- 10 Elwood JH, Elwood PC, Campbell MJ, et al. Respiratory disability in ex-flax workers. *Br J Ind Med* 1986;*43*:300-6.
- 11 Rylander R, et al, eds. Byssinosis in the Far East. Proceedings of international workshop in Hong Kong. *Am J Ind Med* 1987;*12*:647-804. (Special issue.)
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Correction

Relation between lung function, exercise capacity, and exposure to asbestos cement (August 1987, p 545)

We regret that owing to a printing error table 5 appeared twice. Table 4 reads as follows:

Table 4 Relation between smoking, asbestos exposure, and lung function measured at rest in the study group. Multiple regression analysis was used and the standardised regression coefficients (B) are presented. This relates the standard deviation unit change in the dependent variable to one standard deviation unit change in an independent variable

		TLC	FRC	RV	Cst _L	R _L	Pel _{LITLC}
Smoking:	B	0.254	0.299	0.282	0.065	0.019	-0.263
(n = 120)	p	<0.001	<0.001	<0.001	NS	NS	<0.01
Exposure:	B	-0.285	-0.211	-0.218	-0.217	0.108	0.241
(n = 120)	p	<0.001	<0.01	<0.01	<0.05	NS	<0.01

Notices

Preliminary Certificate in Asbestos

The National Occupational Hygiene Service Ltd in conjunction with Central Manchester College is pleased to announce the dates for further courses leading to the BERBOH preliminary certificate examination in asbestos sampling and analysis. Limited experience, five day course, 12-16 September and 7-11 November 1988; extensive experience, two day courses, 19-20 September and 14-15 November 1988. For further details phone Action Line between 1300 and 1600 daily, 061 831 7791 ext 334.

ESF Research Fellowships in Toxicology (PGT)

Research fellowships (2-12 months) and short term visiting fellowships (up to one month) are offered to scientists of any nationality working in European (or Israeli) laboratories to go to laboratories in other European countries. Deadline for submitting applications for research fellowships is 15 September 1988 to start from 1 January 1989. Short term visiting fellowships may be applied for at any time. For further information contact ESF Research Fellowships in Toxicology (PGT), Mrs Caroline Schneider, European Science Foundation, 1 quai Lezay-Marnesia, F-67000 Strasbourg, France.

2nd Meeting of the International Neurotoxicology Association, Sitges, Barcelona, 22-26 May 1989

The programme will include symposia, workshop, review lectures, and poster sessions for contributed papers. For further information contact: Dr E Rodriguez Farre, Secretariat II INA meeting, Department of Pharmacology and Toxicology, CSIC, Jorge Girona Salgada, 18-26, Barcelona, E-08034 Spain.