

## BYSSINOSIS AMONG COTTON WORKERS IN BELGIUM

BY

E. TUYPENS

*From the Medico-Social Service, Peignage D'Ecclou Ltd., Belgium*

(RECEIVED FOR PUBLICATION AUGUST 22, 1960)

The existence of byssinosis among cotton workers in Belgium has, up to now, been a matter of doubt. This study reveals that the disease undoubtedly occurs, but its prevalence is much lower than in Lancashire cotton mills. I have made investigations in two textile mills, one in East Flanders and one in West Flanders. Ninety-eight workers were interviewed in the first mill and 101 in the second, comprising card-room workers, thrashers, and blenders. Ten (5%) of these workers were found to have Grade I byssinosis; four (2%) were diagnosed as Grade II; and two (1%) were in Grade III.

Byssinosis is a respiratory disease affecting textile workers in the card-rooms of cotton-spinning mills.

The first physician in Flanders who drew attention to the specific influence of cotton dust was Van Coetsem who, in 1836, stressed the typical discomfort due to what he called "cotton pneumonia" at the beginning of the week.

In 1845, Mareska and Heyman found that among 1,000 men working in the cotton mills of Ghent, 49 were suffering from respiratory diseases. An inquiry among 1,000 female workers showed that 58 were similarly affected. All the workers declared that dust made them feel more uncomfortable at the beginning than at the end of the week. They described the uneasiness they felt as a "pack" weighing on their chest.

Nearly a century elapsed before Thiry (1941) surveyed 400 cotton operatives. Among the younger workers nothing abnormal was recorded, but 88% of the older workers had symptoms of chest diseases identified as chronic bronchitis or emphysema. But Thiry made no mention of the characteristic "Monday complaints".

### Present Inquiry

In 1957, the prevalence of byssinosis was investigated in two factories located in each of the well-known textile centres of Courtrai and Ghent.

These two factories were typical of Belgian textile mills. They were technically well equipped, without being very modern. Each employed roughly 1,000 persons of whom about 100 worked

in the card-room and other processes in which cotton is prepared for spinning.

Card-room workers, thrashers, and blenders were interviewed and asked previously prepared questions about their family and occupational histories. Particular attention was paid to the number of years worked in cotton card-rooms and other processes in which cotton is prepared for spinning.

According to Schilling (1956), byssinosis should be diagnosed on the patient's symptoms of chest tightness and breathlessness. Belgian and other foreign specialists supported this view and advised me to rely on the patient's history for diagnosis. The histories were graded as follows:

Grade I: Subjective symptoms such as a suffocating feeling in the chest, limited to Mondays.

Grade II: Similar symptoms extending to other working days.

Grade III: Continuous symptoms during week-ends and holidays.

Most of those who gave a history of byssinosis were sent to Dr. Op de Coul in Holland. He confirmed the diagnosis in all the cases seen. Some typical histories are given in the Appendix.

### Results

The prevalence of byssinosis was similar in the two mills (Table 1).

There are three possible reasons why none of the women had symptoms. First, they operate machines which are believed to give off the smallest quantity of dust; second, they are less tied to their

TABLE 1  
PREVALENCE OF BYSSINOSIS IN CARD-ROOM WORKERS,  
THRASHERS, AND BLENDERS

Mill	No. at Risk	Byssinosis Grade		
		I	II	III
A (Courtrai)	98	4	2	1
B (Ghent)	101	6	2	1
Total	199*	10	4	2

\* Includes 32 women in Mill B and 39 in Mill A. No woman gave a history of byssinosis.

jobs than the men and can leave as soon as symptoms appear, and third, they smoke much less than the men.

**Age.**—Table 2 gives the distribution of prevalence by ages.

All six workers who had reached Grade II or III byssinosis were aged 41 years or more.

**Years of Service.**—No worker with less than five years' service in card-rooms was apparently affected by the dust. Among the 83 men who had less than 21 years' exposure, seven (8%) had symptoms but among those with 21 or more years' exposure, nine out of 34 were affected, giving a rather alarming prevalence of 26%.

**Type of Work.**—To know the kind of work done by the byssinosis patients helps us to find out which machines are the most dangerous.

The carding machines emit the greatest quantity of dust, but it would be unwise to neglect the operations before carding. The operations which follow the carding process are apparently without risk.

TABLE 2  
PREVALENCE OF BYSSINOSIS BY AGE AMONG MEN

Age	No. at Risk	No. with Byssinosis
14-	4	0
21-	54	5
31-	21	0
41-	28	7
51-	16	3
61-65	5	1
Total	128	16

Examples of case histories of byssinosis are given below. They follow a similar pattern to those described by workers in other countries.

**Grade I.**—E.G., after nine years' work at a tile factory, became a carding machine operator 11 years ago.

In this study, the following three operations gave rise to the disease:

Among the 21 workers occupied in blending (mixing room): one case;

Among the 22 workers occupied in thrashing (blowing room): two cases;

Among the 85 workers employed on the carding processes: 13 cases.

Thus, carding was responsible for most cases of byssinosis and confirms the general opinion among those acquainted with working conditions in cotton mills.

Attention has been drawn above to the possible reasons why female workers were not affected. The type of work may also be important. The women are not working on carding machines, but on other machines in other parts of the card-room. In Lancashire mills it has been shown that there is less dust and less disease in these parts of the card-room (Roach and Schilling, 1960). True, these machines form no part of the spinning mills and, though they are to be found in the same card-room, the quantity of dust is less.

For 20 years, byssinosis has been officially recognized as an occupational disease in Great Britain where, in the three years 1956-1958, 686 new cases out of some 40,000 workers at risk were awarded disability pensions (Gilson, 1960). As far as is known, byssinosis is not a compensatory occupational disease in any other country. This paper reveals that the disease undoubtedly occurs in Belgian cotton mills but the prevalence in the two mills studied is much lower than that found in Lancashire mills where as many as 56% of card-room workers may be affected (Schilling, 1956). It is hoped that in Belgium it will be possible to make a wider and more detailed survey of cotton mills to reach more definite conclusions about the size of the problem.

#### REFERENCES

- Gilson, J. C. (1960). Industrial Pulmonary Disease. In *Modern Trends in Occupational Health*, ed. R. S. F. Schilling, chapter 4, pp. 50-77. Butterworth, London.
- Mareska, J., and Heyman, J. (1845). *Ann. Soc. Méd., Gand*, 16, 267.
- Roach, S. A., and Schilling, R. S. F. (1960). *Brit. J. Industr. Med.*, 17, 1.
- Schilling, R. S. F. (1956). *Lancet*, 2, 261 and 319.
- Thiry, U. (1941). *Arch. Mal. prof.*, 3, 129.
- Van Coetsem (1836). Quoted by Mareska, J. and Heyman, J. (1845).

#### APPENDIX

Four years ago he developed so-called "Monday complaints" after two hours' work in the card-room. After leaving work in the evening he had to recover his breath, which took him about 20 minutes. At his former work he always felt well and now he sometimes had to gasp for breath. As he was worried about these symptoms

he went to a chest physician, who could find no abnormality.

**Grade II.**—V.D.B.A. aged 28, has worked in the card-room for 12 years. He has suffered from a skin complaint on forearms, knees, and thighs since he worked in cotton mills.

After six years, he had symptoms which he described as a "belt around his chest"; this feeling of discomfort, which at first occurred only on Mondays, spread later on to Tuesdays and Wednesdays and decreased in the second half of the week.

He smokes about 40 cigarettes daily. When he is away from work for about eight days, his chest symptoms and skin eruption disappear.

**Grade III.**—S.M. aged 53, started work at the age of 16 in the blending room and was appointed a card machine operator after three years of service.

Six years later he first noticed chest symptoms especially on Mondays when he complained of an oppressive feeling that gradually became worse and finally was experienced on other days of the week. At present, he has constant discomfort. His breathing difficulties cause insomnia and he has been forced to stop smoking.

His general practitioner at first thought him to be suffering from tuberculosis. A full investigation was negative and it was concluded that his disease was due to his employment on dusty work.