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Johns-Manville

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Internal Correspondence

To: Dr. Paul Kotin

Date: September 23, 1974

From: George W. Wright, M. D.

Copies: File

Subject: TELEPHONE CONVERSATION WITH HILTON LEWINSOHN, 9/19/74

(1) The Turner Brother's cohort has now been enlarged to 391 by bringing in those individuals employed since 1933 who have 10 or more years exposure and increasing the period of observation from the late '60's to 1972. They have followed not only the employees still on the job but also those who have left employment.

In this cohort of employees who started work since 1933, they have now recorded 26 cases of asbestosis diagnosed by the more liberal criteria proposed by the Workmen's Compensation Board of Great Britain. These criteria are considerably more liberal than those originally utilized by Dr. Knox in his previous observations on the original cohort of 291. In my judgement the finding of these cases is reasonably good evidence that there has been a substantial exposure for this population especially during that period between 1933 and perhaps 1960. When I spoke about this with Dr. Lewinsohn and he agrees with me that there must have been a transition period during which the fiber count dropped following the institution of the regulations in 1933. I have no certain way of knowing what these counts may have been but on the basis of what I know about other observations I would expect that the counts at the beginning of 1933 might have been in the range of 50-100 fibers per cc and I would expect that even as recently as late 1950's it would have been something of the order of 25 fibers per cc. We know that in the middle 1960's when membrane filters were beginning to be used and fiber counts be made by the Turner Brother's Hygienists the counts were in the neighborhood of 10 fibers per cc. Moreover, it has really only been in the period subsequent to 1968 or 1969 when they had a fairly high proportion of their operation going at below 5 fibers per cc. I make these points because I would anticipate that those individuals who are showing any evidences of asbestosis or of bronchogenic cancer and possibly even mesothelioma were those

persons who were exposed in that period prior to 1950 or 1955 when the fiber counts were much higher than our current standard of 5 and the projected standard of 2.

(2) At present there have been 29 deaths in the cohort of 391 persons. On the basis of the British National Statistics for a population of this size having the age distribution that this population has they would have anticipated 40 deaths during the period of observation. This indicates clearly that, as has been observed in other industrial populations, the working population is a selected group and have a lower mortality experience during their working ages than is true of the general public. For this reason it is somewhat lacking in validity to compare the patterns of mortality in any working population to what are called the National Statistics which is a population having a vastly different mortality pattern.

When the causes of death are broken down it shows that out of the 391, 7 lung cancers were observed whereas 4.8 were expected on the basis of National Statistics. Subjected to statistical analysis this difference is not significant. There were 3 mesotheliomas, and of course this is obviously a statistically significant difference. If one makes an adjustment and looks at this experience in terms of 40 expected deaths rather than 29 then the portion caused by lung cancer is not abnormal, although of course the mesotheliomas deaths do constitute a larger than expected group. It would appear then that on the basis of proportion of total deaths or those observed compared to the expected there is no statistically valid difference between the working population and the general public in Great Britain from this cohort of 391 persons. My own impression would be that if they had large enough numbers there would be some statistically different findings but they would be rather small. I say this because I am convinced in my own mind that they did not overnight diminish their exposure by the amount that I think is necessary to get a completely safe working place. On the other hand, I feel very strongly that their experience thus far cannot be used to promote the contention that somewhere between 5 and 2 fibers per cc is an unsafe level. Dr. Lewinsohn is sending me this material

in greater detail as soon as he can. I asked specifically whether or not the cancer deaths and the mesotheliomas deaths had been in those people who had been employed prior to 1955 and he indicated that his recollection is that this was the case but he will look into this and make certain that he is correct.

(3) Dr. Lewinsohn explained to me how this renewed interest in the Turner Brothers experience came about. He says that Granada Television has a program call World Action and in this they had interviewed Dr. Selikoff on the subject of Vinyl Chloride. At that time he told them about the controversy between Lewinsohn and himself and suggested that they look into the Turner Brother's story. Granada Television has done so and they plan to have a television show on this subject. They have already filmed Turner Brother's operations, Lewinsohn's examining of patients and Holmes doing hygiene studies. They plan to interview Selikoff on this specific subject sometime in the very near future and they have promised to interview Lewinsohn after they have interviewed Selikoff. The Turner Brother's people felt that in any case they were obligated to say exactly what the circumstances were and furthermore they do not believe the circumstances are indicative of a need to set a standard lower than already exists in Great Britain. For these reasons they have been completely open in telling any inquirers what the circumstances are.

George W. Wright, M. D.
GWW/bam

LEWINSON

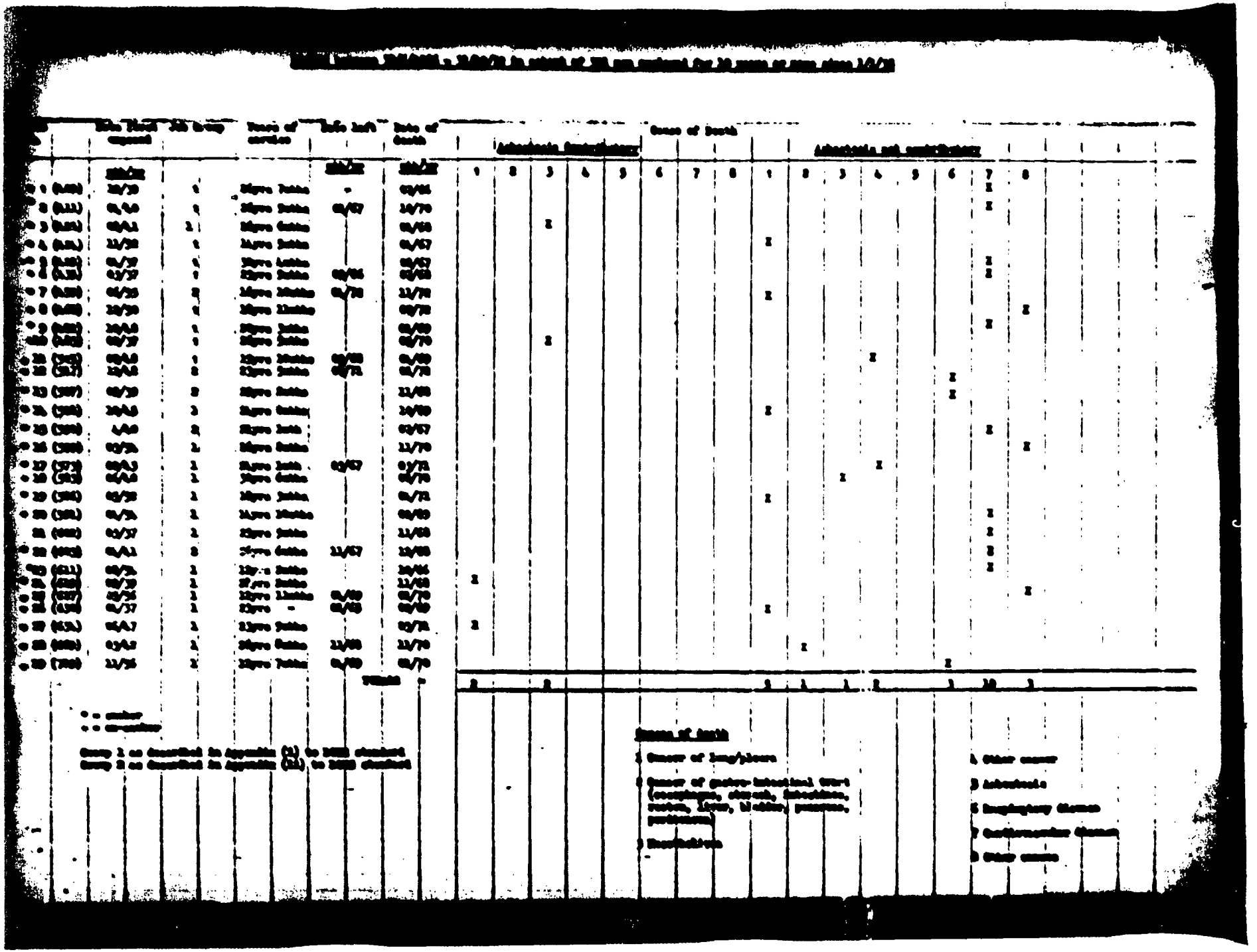
TABLE I

	1966 Cohort [illegible]	Re-hired [illegible]	Current [illegible]	Asbestosis Cases as at 31.12.72 1966 Cohort	1972 Cohort Additions to Cohort	TOTAL
Still employed	162	81	243	12	2	14
Left	95	24	119	11	1	12
Deceased	28	1	29	3	0	3
TOTAL	285	106	391	26	3	29

TABLE 1 (4)

Deaths - 30.6.66 - 31.12.72

		Asbestosis Contributory	Asbestosis not contributory		
1.	Cancer of lung/pleura	2	5	Total	7
2.	Cancer of gastro-intestinal tract (oesophagus, stomach, intestines, rectum, liver, bladder, pancreas, peritoneum)	-	1	•	1
3.	Mesothelioma	2	1	•	3
4.	Other cancer	-	2	•	2
5.	Asbestosis	-	-	•	-
6.	Respiratory disease	-	3	•	3
7.	Cardiovascular disease	-	10	•	10
8.	Other causes	-	3	•	3
		—	—		—
	Total	4	25		29



Dr. A. E. Gwilliam.

Since I have had the details of the cohort to hand I have made a reappraisal of the situation.

I have taken the ages of the cohort at the mid-point of the period under review and used the Chester Beatty Research Institute tables to calculate the expected deaths from various causes for a population of 391 with this age distribution drawn from the national population. The results are as follows together with the observed number of deaths within the cohort.

	Observed	Expected
Death from lung cancer	7	4·83
Death from other cancer	6	5·29
Death from all other causes	16	29·91
Survivors	362	350·92.

If we take each class individually it is easy to show that in the first two classes i.e lung cancer and other cancer there is no evidence that deaths from these two causes differ significantly from the national average. The point of interest is that deaths from all other causes are significantly lower within the cohort than the national average.

One of the arguments that could be used to support the hypothesis that the incidence of lung cancer is significantly greater in the cohort goes like this. With 7 deaths out of 29 due to lung cancer the proportion of deaths due to lung cancer is 24%. But the national proportion is 13% therefore the incidence of lung cancer in the cohort is twice the national average. It can easily be seen that this argument is entirely fallacious. The proportion is inflated to 24%, not by a significant increase in lung cancer deaths but by a significant decrease in the total number of deaths. The recorded number of deaths was 29 where the expected number 40.

I must reiterate that there is no evidence from this cohort that the incidence of lung cancer is substantially greater than the national average in spite of the considerable exposure of all members of the cohort.

A. E. Gwilliam

TABLE 2

Comparisons between Doll 1955 and Table 1(a)

	Asbestosis Present	Asbestosis not present	Total
(Doll) 1953-52	75	30	105
(BCL) 1966-72	4	25	29

An illustration of the declining incidence of asbestosis as a contributory cause of death.

TABLE 3

Unconfirmed Preliminary Information on Present Up-dating of Knox, Holmes, Doll and Hill (1968)

(Observed and expected deaths from all types of cancer 1966-1972 in men with 10 years or more exposure since 1.1.33).

Total	Deaths observed	Deaths Expected
699	19	19.8

Observed and expected deaths from all cancers in the up-dated total population (i.e. anybody with 10 years or more exposure (including women) irrespective of year of first exposure), between 1966-1972.

Total	Deaths observed	Deaths Expected
1105	87	87.1

[redacted]

	[redacted]	[redacted]	[redacted]	[redacted]		TOTAL
				1965 Cohort	1972 Cohort Additions to Cohort	
Still employed	162	81	243	12	2	14
Left	93	26	119	11	1	12
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TOTAL	283	106	391	26	3	29

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3.	Mesothelioma	1	1	2
4.	Other cancer	-	2	2
5.	Asbestosis	-	-	-
6.	Respiratory disease	-	3	3
7.	Cardiovascular disease	-	10	10
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	Total	3	25	28

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	Observed	Expected
Death from lung cancer	7	4.89
Death from other cancer	6	5.37
Death from all other causes	16	29.91
Survivors	362	350.82

If we take each class individually it is easy to show that in the first two classes i.e. lung cancer and other cancer there is no evidence that deaths from these two causes differ significantly from the national average. The point of interest is that deaths from all other causes are significantly lower within the cohort than the national average.

One of the arguments that could be used to support the hypothesis that the incidence of lung cancer is significantly greater in the cohort goes like this. With 7 deaths out of 29 due to lung cancer the proportion of deaths due to lung cancer is 24%. But the national proportion is 12% therefore the incidence of lung cancer in the cohort is twice the national average. It can easily be seen that this argument is entirely fallacious. The proportion is inflated to 24%, not by a significant increase in lung cancer deaths but by a significant decrease in the total number of deaths. The expected number of deaths was 29 the expected number 40.

I must reiterate that there is no evidence from this cohort that the incidence of lung cancer is substantially greater than the national average in spite of the considerable exposure of all members of the cohort.

E. R. Williams

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Total	Deaths observed	Deaths Expected
1103	27	27.1