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Number	Depression of Tuber Angle	Arthritis	Foot Fore- shorten- ing	Lateral Spread- ing	Spur Forma- tion
589901					
591578					
C.S.					
C.S.					
516114		Healing with no evidence of injury	.....	.....	.....
659006					
516467					
516467					
591830					
589592		Osteoporosis	.....	.....	.....
518992		Osteoporosis	.....	.....	.....
515856					
583370		No further X-Rays taken	.....	.....	.....
515844					
518909		No deformity	.....	.....	.....
714629		Fracture line obliterated	.....	.....	.....
Totals	9		4	6	6

Table IV. Final Pathology.

Number	Defect in Flexion	Defect in Lateral Motion	Thicken- ing	Permanent Defect
589901				Comm. 45%
591578				20%
C.S.				Still undetermined
C.S.				Still undetermined
516114				None
659006(x)				20%
516647				20%
516467				30%
591830				Comm. 45%
589592				Comm. 45%
518992				40%
515856				40%
543370				Comm. 20%
515844				25%
518909				None
714629		Normal	.....	None
Totals	13	12	10	Average 25%
(x) See X-Ray.				

Table V. Permanency.

Conclusion

AN ATTEMPT should always be made to obtain reduction.

2. Boehler's method is perhaps the most satisfactory means of reduction.

3. Prolonged physiotherapy is an important part of the treatment, and the whirlpool bath appears to be the best agent.

4. Fractures do not necessarily produce a permanent defect.

5. A permanent defect of more than 50% is not to be expected.

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Occupational Disease Compensation

Data Indicative of Cost, for Occupational Diseases in General, and of Silicosis, Asbestosis and Dust Diseases in Particular

By F. ROBERTSON JONES,
General Manager,
Association of Casualty and Surety Executives,
New York

Massachusetts Experience

ALTHOUGH the Massachusetts Workmen's Compensation Law has from its inception—it became effective July 1, 1912—literally covered all "injuries" arising out of the employment, it was not until the decision, in 1929, of the Supreme Judicial Court, in *Sullivan's Case*, 265 Mass. 497, that pneumoconioses (including silicosis) were held to be covered. Until then the cost of the few cases of occupational diseases theretofore held to be compensable was too low to affect the rates materially. But that case, and *Fabrizio's Case*, 274 Mass. 352, decided several years later, caused a widespread claim consciousness requiring modifications in rates to meet an acceleration, both actual and prospective, of occupational disease costs—most immediately in the rates for stone cutting and foundry hazards. The following is a rough outline of the subsequent development of the rates for such occupations to October, 1935:

Stone Cutting

IN THE Manual the risks in question originally came under classification:

"1803. Stone Cutting and Polishing (N. O. C.) excluding quarrying."

As of March 1, 1934, that classification was discontinued and the following was substituted:

"1808. Stone Cutting or Polishing—Granite—including Drivers, Chauffeurs and their Helpers. (Quarrying to be separately rated)."

Under Classification 1803 a rate of \$4.77 per \$100 (covering all "injuries" under the law) was in effect from December 31, 1928, to June 1, 1931, and, though omitted from the Manual after the latter date because of application for official approval of a higher rate, continued in effect for about a year longer. However, in the meantime, various carriers requested and received approval of a \$10 rate for many risks. Later, because of wage reductions, a \$12 rate was approved for a period beginning June, 1932. But only one company would write the insurance at such rate, and it discontinued November 1, 1932, because of unwillingness of its reinsurer to continue.

Thereupon, as a result of conferences between the Insurance Commissioner and actuaries representing the Rating and Inspection Bureau and leading carriers, in November, 1932, it was recommended to establish a rate for this classification of \$3 per \$100 payroll, with a "Supplementary Occupational Disease" rate of \$300 per employee per year (\$25 per month for any employee on the payroll during all or any portion of any calendar month). This rate was not approved until over a

year later, to take effect December 1, 1933. In the meantime, insurance of risks in this classification was almost entirely suspended.

The \$300 per capita rate was based on the fact that the experience under Classification 1803 for the policy years 1926 to 1930 inclusive disclosed a total of 92 pneumoconiosis cases, with an incurred loss of \$288,075, the average claim cost being \$3,131. It was estimated that many employees then in the industry would within the next 10-year period develop the disease, making it necessary to collect over that period the sum of \$3,000 per man. Hence the necessity for the supplementary occupational disease rate of \$300 per year or \$25 per month of employment exposure.

However, the Supplementary Occupational Disease rate (of \$300 per employee) may be reduced 40% provided that specified conditions relative to the health of employees, dust suppression and personal protection, are continuously effective; and may be entirely removed if more stringent conditions be maintained. On the other hand there are special conditions applicable to the writing of risks in this classification—relative to inspections, approval by Rating Bureau, audits, experience rating, commissions and engineering requirements.

The rating provisions above outlined now apply to Classification 1808 (which on March 1, 1934, was substituted for Classification 1803, as explained above).

While these rating provisions were developing, the payrolls in the stone cutting industry in Massachusetts were shrinking, as per the following table (furnished by the Massachusetts Rating and Inspection Bureau):

Policy Year	Payroll
1929	\$3,033,200
1930	2,857,800
1931	2,046,100
1932	786,800
1933	421,400

Of the payroll for 1933, \$342,248, being 81%, was represented by one large risk which is not insured. These figures indicate that the cost of occupational disease coverage is either causing unemployment or causing men to continue at work without compensation insurance protection, or both.

Foundry Hazards

IN OCTOBER, 1933, the Massachusetts Rating and Inspection Bureau submitted for official approval a Supplementary Occupational Disease rate of \$4.00 per \$100 of payroll to be applicable to all employees exposed to a foundry hazard. This rate was computed upon Massachusetts' experience with silicosis losses in all classifications and upon silicosis claim frequency from foundry hazards in other jurisdictions, the Massachusetts experience with foundry losses being yet too brief and inadequate to serve by itself as a basis for rate making. However, such proposed rate was not approved, and, instead, a Supplementary Occupational Disease rate of \$2.00 per \$100 on the payroll of all employees exposed to a foundry hazard in any risk, howsoever classified, was approved to take effect December 1, 1933, and is still in force. This premium is in addition to the normal premium for the classification.

The situation in Massachusetts in regard to insurance of foundry hazards is complicated by emotions aroused by the so-called Glenwood Range Company case. In that case, a carrier which had insured the range company, cancelled its policy because of unfavorable experience. Thereupon another carrier took the risk, but, first, some 42 employees were discharged because reported, upon medical examination, to be already affected with silicosis. Generally these men were not disabled, and a violent public agitation was aroused in their behalf. In consequence they were nearly all taken back eventually, the retiring carrier compensated them for their lost time, and a third carrier took the risk upon being reinsured by a pool of other carriers. Although experience is yet too brief to demonstrate conclusions, it indicates that the \$2.00 rate is inadequate—especially in view of the fact that, since such rate was established, the period of compensation for permanent total disability has been lengthened (by Chapter 364, Acts of 1935) by the addition of a life pension after the termination of the former limit of 500 weeks.

Silicosis and Asbestosis

British Experience

SUCH British experience as is available is difficult to analyze and explain without a thorough knowledge of the British compensation law—that part of which relating specifically to this subject consists of many complex provisions in each of six different "schemes."

The schemes do not cover all industries broadly, but only those industries enumerated in some one of five trade schemes. (The sixth scheme relates to "Medical Arrangements," which apply to all the other schemes). These schemes are all relatively new, and their collective scope has been much enlarged in very recent years. Consequently the experience is not broad and has been too brief to be definitely instructive.

Under each of two of the trade schemes, insurance is monopolized by a compulsory Trade Fund. Under the other three trade schemes, stock companies and mutuals provide the insurance, and many establishments "self-insure."

The risk insured against is practically threefold: (1) of primary liability for disease contracted during the term of the policy; (2) of liability to contribute pro rata to the cost of compensation to ex-employees; (3) of liability for compensation to employees "suspended" on first official periodical medical examination after the carrier goes on the risk. The stock companies cover these risks—one, two or all—variously; but their quoted rates, it seems, generally apply only to the first coverage and there are extra charges for the other two—the charge for coverage of the third risk being commonly an extra annual premium.

The charges for insurance—which are the only indicia of loss cost available—are rated variously: On total payroll (with exclusions); on wages of named employees or of employees engaged in specified processes; per capita; per grindstone rased; per millstone dressed; etc., etc.

Note that the rates in question are for insurance of compensation only for silicosis or asbestosis (including cases complicated with tuberculosis) and are additional to the rates for accidents and other occupational diseases.

In the "Sandstone Industries Scheme" the rates assessed by the Trade Fund for 1935 are reported to be as follows, in percentage of wages: Grade A, 4.16%; Grade B, 2.08%; Grade C, 1.04%.

In the "Refractories Industries Scheme," the Trade Fund assesses a uniform, "flat" rate for all establishments alike. That rate is reported to have been recently increased from 5% to 6.25% of wages.

The industry subject to the "Asbestos Industry Scheme" is largely controlled by one large organization which is a "self-insurer" and does not report its experience. The stock company rates for risks subject to this scheme vary from 7½% to 10%, where strict precautions are taken, with a special rate of 12.5% for the making or repairing of asbestos mattresses.

The following are some illustrative rates reported to be charged by the stock companies for occupations under the "Various Industries Scheme" and the "Metal Grinding Industries Scheme"—in percentage of wages unless otherwise stated:

Brick manufacturer	.....	.05
Potteries—China	.....	6.25
Potteries—Earthenware	.....	3.125
Plus £1 per capita to cover suspension on first medical examination.		
Builder—Stone masons only	.....	7.5
Plus £7.10 per capita for coverage of named ex-employees or an additional annual premium for coverage of all ex-employees.		
Public works—dressing pavement stones or curbs	.....	\$10 per capita
Racing grindstones—per grindstone raced	.....	£1
Corn mill—per pair of stones dressed	.....	10s
Manufacturing and packing scouring powder	.....	5%-10%
Metal grinding	.....	6%-10%
Foundries and metal works (general)	.....	2%

The inadequacy of the British experience needs to be emphasized. Asbestosis became compensable only in 1931; and the same is true of silicosis in coal mining. Experience in the coal mining industry is especially significant in this respect. There are three or more large coal mining areas in Great Britain. In one area, South Wales, the cases of silicosis certified have been increased progressively as follows: 1931, 61; 1932, 161; 1933, 230. In the other areas there have yet been almost no cases. There is no known reason for this increase in one area and absence of cases in the other areas, except increasing claim consciousness in the first area and unawakened claim consciousness in the others.

In connection with the above-cited rates for insurance of compensation for silicosis and asbestosis, the benefits under the British Workmen's Compensation Acts should be considered. Roughly they are as follows:

For incapacity: 50% of average weekly wages, or of the resulting wage loss, maximum 30s. per week, during incapacity—subject to commutation by agreement.

For fatal injuries: lump sums, varying according to number and relationship of dependents; maximum for widow alone, £300; maximum for widow and dependents under 15 years of age, £600.

Medical benefits: none, i.e., the employer or insurer may voluntarily provide medical, surgical or hospital treatment or care but neither is under any obligation to do so.

Silicosis

New South Wales Experience

IN NEW South Wales there are two "schemes" for compensation for diseases caused by silica dust. For one of these schemes—"Workmen's Compensation (Silicosis) Scheme No. 1"—the cost experience has been distinctly and adequately reported.

That scheme applies to stonemasons, quarrymen, rock choppers and sewer miners in Cumberland County. The compensation is payable out of a public fund, maintained by levies upon employers and substantial subventions by the state. According to the figures published in the "Eighth Annual Report of the Worker's Compensation Commission," the losses incurred, plus expenses of administration, from the inception of the scheme in 1927 to June 30, 1934, amounted to about 10% of payrolls in the occupations covered. This cost, it should be emphasized, was for compensation for silicosis alone, compensation for accidental injuries and other occupational diseases being a separate matter.

In this connection, it should be further noted that the scale of benefits under this scheme is not abnormal, the maximum total payments for incapacity, for illustration, being limited to £750.

Occupational Disease Coverage

North Carolina

THE following table gives the present manual rates for workmen's compensation insurance in North Carolina, for a few typical classifications in which there are silicosis or asbestosis hazards, with the total rate, and the total occupational disease element, and the specific silicosis or asbestosis element in the rate, stated separately:

Code	Classification	Total Rate	Asbestosis or Total O.D. Silicosis	
			Total Rate	Element
1605	Rock excavation	\$11.35	\$1.34	\$1.32
1852	Asbestos goods mfg.	5.48	3.00	2.98
3081	Iron foundries—N.O.C.	5.21	3.00	2.98
3085	Foundries—non-ferrous metals—N.O.C.	4.62	3.04	2.98
1164	Mining—not coal—with shafts, tunnels, or drifts	10.88	3.00	2.98
1303	Stone cutting	5.62	3.00	2.98
4000	Sand and gravel	6.55	.27	.29

In classification 3085, the slightly higher total occupational disease element is due to the fact that there is some lead as well as silicosis hazard.

In each of the foregoing classifications, it is provided that where the occupational disease hazard of the risk is abnormal, an addition to the manual rate may be charged, subject to the approval of the Compensation Inspection and Rating Bureau of North Carolina.

It should be noted that these rates are highly tentative or speculative, being based upon estimates in advance of experience. They are, however, predicated upon the specific provisions of Section 50½ of the North Carolina Workmen's Compensation Act, as added by amendment effective March 26, 1935, which provisions clearly define the diseases to be deemed "occupational" and specially regulate the liability to compensate for silicosis or asbestosis.

That amendment followed a decision by the

Supreme Court of North Carolina, in *McNeely v. Carolina Asbestos Co.*, May 23, 1934, wherein it was decided that an occupational disease (asbestosis) contracted unexpectedly and gradually during many months of exposure, if due to the employer's failure to provide means of prevention, is an injury "by accident" and, as such, was compensable under the Workmen's Compensation Act as it then read—which decision injected elements of uncertainty into the law that rendered the hazards of occupational diseases, particularly of silicosis and asbestosis, often uninsurable at practicable rates. At the time of this decision, the manual rates then in effect, for the classifications above given, were as follows:

Code	Classification	Total Rate	O.D. Element
1605	Rock excavation	\$8.95	\$.45
1852	Asbestos goods mfg.	2.86	.53
3081	Iron foundries—N.O.C.	2.84	.40
3085	Foundries—non-ferrous metals—N.O.C.	2.18	.40
1164	Mining—not coal—with shafts, tunnels or drifts	7.75	.40
1803	Stone cutting	3.29	.90
4000	Sand and gravel	5.47	.10

With reference to the occupational disease element in these earlier rates, it needs to be explained that, although "occupational diseases" as such were not then compensable, yet there were risks, i.e., chances, of liability for occupational diseases at common law, which might be covered by the policies, and of some cases of occupational diseases being compensable because arising "by accident."

The *McNeely* case, above referred to, so construed the phrase "by accident" as to magnify the occupational disease risk under the compensation law tremendously, thereby rendering the rates then in effect grossly inadequate for all classifications with asbestosis, silicosis or other serious occupational disease hazards.

Dust Disease Coverage

New York

IN NEW YORK, rates and charges for dust disease coverage have been approved, effective September 1, 1935. These rates cover the dust disease hazard only, and are additional to the manual rates for coverage of accidental injuries and all other occupational diseases.

Since there are two methods of rating the dust disease risks, it is necessary to show two sets of rates for this coverage. The two methods are:

RATING PLAN I: Under Rating Plan I, the risk is charged, in addition to the general workmen's compensation rate, a rate per \$100 of payroll on those classifications in which the dust hazard is present, which rate is designed to provide premium to take care of dust disease losses only. In addition to these rates per \$100 of payroll, the assured is charged \$300 per claim for each claim for disability lasting four months or longer, or for death, resulting from injury to the respiratory tract. These rates for the dust disease hazard may be eliminated, reduced or increased, subject to the approval of the Compensation Insurance Rating Board, where, in a particular risk, the processes or products causing the hazard are non-existent or present a subnormal or abnormal hazard.

RATING PLAN II: Under Rating Plan II, there is charged for the dust disease hazard a rate per \$100 of payroll, much lower than the rate under Plan I, but, in addition, a per capita deposit per employee is required. Under this Plan the assured is required to reimburse the carrier for 6/7 of all losses and allocated loss expenses arising as a result of dust disease claims during the first year, subject, however, to a maximum charge to the employer of \$6,214 per claim. It is contemplated that in each of the following six years after the first the proportion of the losses to be borne by the carrier shall increase by 1/7, while the proportion borne by the employer shall decrease at

Code Nos.		Rating Plan I		Rating Plan II	
		Per \$100 payroll	Per \$100 payroll	Per capita	
1164	Mining—not coal—with shafts	\$ 4.63	\$1.88	\$ 64	
1165	Mining—surface	2.89	1.18	40	
1438	Smelting, etc.—metals N.O.C.	2.89	1.18	40	
1439	Smelting—by electrical process	1.74	.71	24	
1604-5; 1624	Quarries, rock excavation, etc.	5.21	2.12	72	
1710	Stone crushing, no quarrying	5.79	2.35	80	
1741	Flint or spar grinding	11.58	4.70	160	
1747-8	Emery works; abrasive wheel mfg.	3.47	1.41	48	
1809	Stone cutting or polishing—marble and limestone only	1.16	.47	16	
1810	Stone cutting or polishing—all others	10.42	4.23	144	
1852	Asbestos goods mfg.	6.95	2.82	96	
1852	Asbestos goods mfg.—moulded products only	3.47	1.41	48	
3081-2; 3085	Foundries—iron—steel castings—non-ferrous metals	4.63	1.88	64	
.....	Foundry workers only (in various classifications)	4.63	1.88	64	
3091	Enameled ware (iron) mfg.	5.21	2.12	72	
3122; 3126	Cutler mfg.; tool mfg.	2.32	.94	32	
3169; 3883	Stove mfg.; car wheel mfg.	4.63	1.88	64	
4000	Sand or gravel digging	1.16	.47	16	
4021	Brick or clay products mfg.	2.89	1.18	40	
4024	Refractory products mfg.	3.47	1.41	48	
4053	Potteries—china or table ware	4.05	1.65	56	
4081-2	Potteries—glazed or porcelain ware	3.47	1.41	48	
4101-2; 1411-14	Glass and glassware mfg.	1.74	.71	24	
5489	Cleaning, etc., outside of buildings	9.84	4.00	136	
5508	Road construction—rock excavation	5.21	2.12	72	
6251-2; 6254-60	Tunneling, shaft sinking, conduits, etc.	1.74	.71	24	

the same rate, so that after seven years the insurance carrier shall bear the entire loss. The per capita charge under this Plan is in the nature of an advance deposit guaranteeing that the employer will reimburse the carrier for his 6/7 or other proportion of the dust disease losses. In the event that this deposit is exhausted, the carrier may call upon the assured for additional deposits. As under Rating Plan I, the rates may, with the approval of the Compensation Insurance Rating Board, be removed, reduced or increased for a particular risk if the dust disease hazard is found to be non-existent, subnormal or abnormal.

In the table (on p. 182) are given the manual rates for this particular coverage, under each of the two plans, and the amounts of the additional deposits under Plan II, for some typical occupations, preceded by notations of the code numbers in the New York Manual of the classifications affected—for the benefit of those who may have such Manual available.

High though these rates may seem, their adequacy, under the present New York law, is generally doubted, with the consequence that the private insurance carriers are rejecting many risks, whereas the State Fund (which is not bound by manual rates) is exacting yet higher charges, especially for risks rejected by the companies.

As a consequence of these very high rates, and the inability of some industries to get any kind of insurance at a price that permits continuance of operations, many establishments are laying off workmen and either closing down or sending their hazardous work out of the state, and an insistent demand has arisen for drastic amendment of the law in so far as it relates to silicosis and other dust diseases. It is probable, therefore, that the 1936 session of the legislature may see important changes in the law and consequently in the insurance rates.

Nursing Service for Industry

By JOANNA M. JOHNSON, R.N.,

Senior Nurse,

Industrial Nursing Service,

Employers Mutuals, Wausau, Wisconsin

IT IS to industry's financial advantage to develop a more adequate industrial nursing service.* A nurse's talents contribute so directly to the humanizing of employer-employee relationships that even in moderate-sized plants her services are aiding industry to increase individual production through well set up industrial health programs.

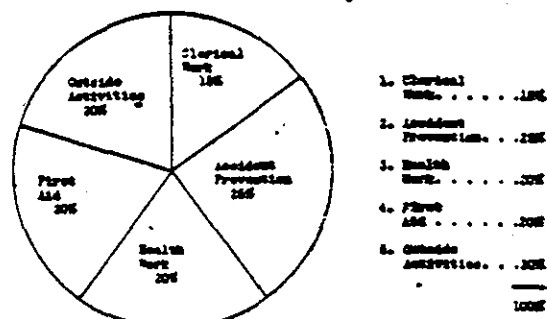
"How large should a plant be before it is necessary to hire an industrial nurse?" "Are we of sufficient size to pay us for the additional expense incurred?" "Can we cut our insurance cost by hiring a nurse?" These and similar questions pertaining to nursing service in industry reach me daily. Very little thought has been given by the employer to the amount of good will which may be created through the employing of a nurse. This is due, no doubt, more to lack of knowledge than to indifference. One of the strongest arguments I have in favor of a nurse in industry is for that very purpose—the promotion of good will.

* This is the first of three articles by Miss Johnson. The second will appear

Let us go back to the first question: how large should the plant be? As to the size of the industry requiring a nursing service, any plant employing more than 200 persons could well profit by employing a registered nurse. This does not imply that in a plant of this size there would be a sufficient number of injuries to keep a nurse busy; rather, there should be fewer injuries because of the educational work done in the promotion of good health and in the prevention of accidents.

Time and money spent on prevention are far better business and give far better results than time and money spent on the care of injuries which have resulted from the lack of educational and safety activities. The hazards involved in the manufacturing of a product should, in a great measure, determine the advisability of a nurse in industry. Where the women employees exceed the men in number a nurse is invaluable, as women and young girls hesitate to go to the foreman or the plant superintendent with problems which are common to their sex alone. Their home problems, too, are many, and can frequently be simplified by discussion with a kindred spirit who understands them and respects their confidences.

Following is a chart to indicate the manner in which the cost of the nurse may be distributed:



1. Time allowed for clerical work: 15%.

This may appear to be a large proportion of the total cost, but not when one considers that a record is to be kept of every injury reported and every ailment; and that the nurse keeps all the records of physical examinations and their follow-ups, and of all compensation cases, together with the records of the payments of claims. In addition, if there is a welfare committee, she serves as secretary of the safety committee. Likewise, if there is a group insurance policy covering the health of the employees she also is the logical person to take care of those records and the following up of the payments of those claims.

2. Accident Prevention: 25%.

A nurse has an unlimited opportunity to put forth an object lesson to the worker at the time when he reports an injury. He receives graciously the suggestion from one who, he feels, is personally interested in his welfare, and who is not thinking of him merely as an efficient person to turn out more work. He is the breadwinner of the family, and as such has a responsibility toward himself, his dependents, and the community. In my own experience in industry I have had many opportunities to encourage that pride in physical well being of the workman.

3. Health Work: 20%.

Lost time may be greatly diminished through the early recognition of diseases, occupational or otherwise.

The nurse is in a position to recognize early