CONTRIBUTION

TO

THE STATISTICS OF PNEUMONIA.

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While in Vienna, in March last, I received a letter from Professor Bennett, requesting me to collect some of the later statistics in reference to the mortality, frequency, treatment, etc., of pneumonia in the General Hospital there. At his suggestion, I now publish the contents of my letter in reply, which he has returned to me for that purpose.

RATE OF MORTALITY.

The table, which immediately follows, gives the number of cases of pneumonia admitted into the hospital during each of the ten last years, with the total number of deaths occurring from that cause.

Table I.

Year.	Number of Cases of Pneumonia admitted into Hospital.	Number of Deaths.	Proportion of Deaths to Admissions.
1847	767	199	1 to 3·9 or 25·6 per cent.
1848	462	119	1 to 3·9 or 25·6 „
1849	592	127	1 to 4·6 or 21·7 „
1850	553	115	1 to 4·8 or 20·8 „
1851	604	127	1 to 4·7 or 21·2 „
1852	676	148	1 to 4·6 or 21·7 „
1853	447	110	1 to 4·1 or 24·4 „
1854	566	141	1 to 4·0 or 25·0 „
1855	584	184	1 to 3·2 or 31·2 „
1856	658	167	1 to 3·9 or 25·6 „
Total,	5909	1439	1 to 4·1 or 24·4 per cent.

As exhibiting, however, still more exactly the rate of mortality, I subjoin the following table, which I have extracted from the *Ärztlicher Bericht über das k. k. allgemeine Krankenhaus zu Wien, im Jahre* 1854.

TABLE II.

		1851.	1852.	1853.	1854.	
Pneumonia,	Cured, ...	76·5	74·9	74·5	70·0	per cent.
	Bettered or uncured,	2·7	2·3	1·9	3·4	„
	Dead, ...	20·8	22·8	23·6	26·6	„
		100·0	100·0	100·0	100·0	

In comparing the years embraced in Table II., with the same years in Table I, a slight discrepancy will be observed. This is accounted for thus:—In the first table, the per centage of deaths is drawn from the number of *admissions*, whereas, in the second, it is derived from the number *treated* each year, the treatment being concluded by successful, fatal, or other issue. The last is influenced, therefore, by the number remaining from the preceding and that passed over to the succeeding year, as well as by transferences during the year.

This does not affect, however, to any important extent, the final result of Table I., which shows 24·4 per cent. as the average mortality. For obvious reasons, this is the case. And we have a demonstration in calculating the means for the four years comprised in both tables, when the results will be found to be almost the same, viz., 23·1 and 23·5%. The greater the number of years, of course, the less will be the discrepancy.

One year, however, shows a strikingly different rate of mortality from another—ranging from 20·8 to 31·2 per cent. But the general line of treatment, pursued in the Vienna Hospital during the last ten years, so far as I know, has remained nearly the same, or at any rate has not been undergoing material or essential changes. We might be apt to suppose, therefore, that this changing rate of mortality had resulted from alterations in the type of the disease.

But, as the following Table[1] will show, the same varying result of treatment may be observed during the course of one year.

TABLE III.

1849.	Different Medical Divisions.	Number Treated.		Number of Deaths.		Proportion of Deaths to Cases Treated.	
		Male.	Female.	Male.	Female.	Male.	Female.
	I. Division,	57	16	14	8	24·5	50·0
	II. „	36	34	6	7	16·6	20·6
	III. „	46	11	15	3	32·6	27·2
	IV. „	19	37	6	9	31·5	24·3
	V. „	37	30	8	7	21·6	26·6
	VI. „	69	25	16	4	23·2	16·0
	Div. for disease of chest (special), .	82	39	11	6	13·4	15·4

In this table, it will be observed that the pneumonias are spread

[1] Report for 1849.

over the six medical divisions of the hospital and the division devoted especially to diseases of the chest; and the former tables, in addition to these, include also the clinics of Skoda, Oppolzer, and Raimann.

In the hands of so many men, there must have been some differences in the style of treatment, but, so far as I can learn, these were of no essential or important character; being, in all cases, modifications of that which nearly ignores bleeding,[1] and uses sparingly tartar emetic.

I thought it possible that these irregularities might be accounted for by some changes or peculiarities introduced into the conditions of admission to the hospital generally or to its different departments, but it was not so. Nor could I, in any other way, explain them satisfactorily or assign a sufficient cause.

We have here, then, a good illustration of how different may be the results of a *similar* treatment in the hands of different men, dealing with the same people, during the same time, apparently under the same general circumstances, and with the type of the disease of necessity the same.

FREQUENCY.

With reference to the frequency of pneumonia in the Vienna hospitals, I have picked out of the reports the following facts, bearing more or less directly on the question.

a. Of all the patients admitted into the hospital, pneumonia formed in

1851—33·2 in 1000.
1852—34·6 in „
1853—22·7 in „
1854—26·9 in „

b. In 1854, nine diseases were before it as contributors to the list of admissions. In other words, in the order of frequency it stood tenth. The nine, which exceeded it, were, in their order, Syphilis, Phthisis (pulmonary), Gastro-intestinal Catarrh, Itch, Catarrh of the Respiratory Organs, Typhus, Cholera, Rheumatism, and Intermittent Fever.

c. In a list, embracing the 58 most frequent and most important diseases, pneumonia stands, as a death producer, as No. 19, and in order of curability, as No. 32; that is, 18 diseases give a larger per centage of deaths, and 31 a larger per centage of cures.

d. Of the 8251 *post-mortem* examinations made during the six years from 1849 to 1854 inclusive, 782 are entered as pneumonias. No trustworthy inference, however, can be drawn from its appearance in the dead house. Professor Rokitansky himself impressed this on me. An examination is not made in every case of death, and cases occurring in the Gebär-und Irrenanstalt, are included. [2]

[1] Professor Th. Helm, the present Director of the Hospital, to whom I am indebted for Table I., thinks it probable that not more than half-a-dozen cases of bleeding occurred during the ten years. If we take ten times six, however, we shall only have one case bled out of a hundred treated.

[2] "When several pathological conditions occur together, that is entered in the Table which is apparently the originating cause of death."—*Report for* 1851.

TREATMENT.

I think I cannot offer any more precise account of the treatment pursued, than will be found in some extracts from the Physicians' Yearly Hospital Reports, and these I shall give as nearly as possible in their *original form*, merely translating into English the words which in the Reports are in German.

In 1849, *vide* Table III., I find the following:—"The therapeutics were regulated by the intensity of the malady. In the department for diseases of the chest (which showed the most favourable rate of mortality) the treatment was expectant. Rest and the withdrawal of all nourishment during the continuance of the fever, water as drink—occasionally emulsion of almonds.[1] On the occurrence of copious bronchial-secretion, Tart. Emet. or Ipecacuanha in large doses. Blood-letting was not at all resorted to. Convalescence was on an average short."

Again, in 1850, which showed a general mortality of 19·35 per cent. in men, and 21·5 in women, the treatment is thus shortly described:—"Treatment generally very simple—Tart. Emet., Cor. Sublimat., Kermes-mineral, Nitrum, often nothing but Emollients, almost never venesection."—*Report for* 1850.

In 1851, we have almost a repetition of the above. "The treatment was usually very simple—bleeding was exceedingly seldom resorted to; Tart. Emet., Opium, Emollient decoctions, or an infusion of Ipecacuanha, were the usual remedies; in severe cases, *Sublimat.* was employed with success."—*Report for* 1851.

In 1852 it is thus described:—"Therapeutics—inwardly Ipecac. cum opio., Tart. Emet. in large doses alone or with Tincture of Opium, Kermes-mineralis cum opio., Mixtura Nitrosa, Emulsum, Decoct. Althæ, Sublimat ($\frac{1}{4}$ gr. to 1 lb. of distilled water—2 tablespoonfuls every two hours), Venesection seldom; outwardly warm fomentations, Ung. Cinereum."—*Report for* 1852.

In 1853 the note describing the treatment is rather more interesting, as it gives the general characters of that pursued in each division.

"*Treatment*, Kermes-mineral 6 to 8 gr. daily with or without opium in powder, Emulsio glacialis, Ung. Cinereum (I. Med. Div.); Nitrum, Infus. ipecac., Tart. Emet. (4 to 6 gr. p. d.), in severe cases Venesection to a pound (III. Med. Div.); Cupping-glasses, Venesection in severe attacks, Poultices, Mixt. Nitrosa with Tart. Emet. and Tinct. Opii simpl., during the resorption sulphur auratum Antimonii, mixtura gummosa cum aqua laurocerasi (IV. Med. Div.); Infus. Ipecac. C. tinct. opii., in cases of strong Cyanosis *Sublimat* in solution and Dover's powder, in rarer cases also venesection, where there was deficiency of expectoration Kermes-mineralis cum opio (V. Med. Div.); Althæa, in cases of great dyspnœa and violent stitch opiates and fomentations, in cases of old persons Camphor. (VI. Med. Div.)"—*Report for* 1853.

In 1854 Dr Pleischl thus describes the treatment pursued in the clinical wards of Professor Oppolzer:—"As far as concerns the

[1] Orgeat—"Mandelmilch."

treatment of Pneumonia, we were satisfied in all cases with Ipecacuanha and Opium in the form of Dover's powder. We attained the end in view, namely, *through the Ipecacuanha*, to create a congestion of the mucous membrane of the stomach, and so derive from that of the bronchi, and thereby lessen the dyspnœa, and, *through the opium* in combination, to mitigate the irritation of the cough. Venesection was in no case indicated, and, therefore, in no case practised. In consideration of this, that four extended double pneumonias presented themselves, and that of two other cases, in one during its progress a tuberculous metamorphosis of the exudation occurred, and in the other abscesses were formed, which cases are entered as fatal under the heading 'Pneumonia'—the rate of mortality is very favourable."—*Report for* 1854.

During that year, and in the manner above described, Professor Oppolzer treated 32 cases, 16 men and 16 women. Of these, 12 men and 15 women, in all 27, were cured; and 4 men and 1 woman, in all 5, died.

Of the 32 cases, in 18 the right side was affected, in 10 the left, and in 4 both sides.[1]

It appears, therefore, that 15 per cent. was considered a very favourable issue. Exactly the same treatment is still pursued in his wards, but not always with the same success, since, in 1855, I believe, out of 39 cases treated 10 died, or 25·6 per cent.

REMARKS ON TREATMENT.

Blood-letting.—From the foregoing quotations, without reference to my personal observation, it is clear that bleeding in pneumonia is very rarely resorted to by the Vienna physicians—that is, it is very rarely considered by them to be indicated or necessary. I qualify the statement thus, because I think that none of them would deny the possibility of a case presenting itself in which the abstraction of blood would be deemed advisable, and in which it would be (and indeed is) practised accordingly.

But it would not be done with any hope of cutting short the disease, of lessening the exudation, or of promoting absorption, but for a temporary good, such as the relief of urgent or alarming dyspnœa. It has to be left then, to the judgment of the physician to determine when, on such grounds, it is indicated, exactly as he has to determine when, or whether he has, to exhibit a laxative, an opiate, or other remedy, during the progress of the disease in question.

Practically, however, it is thus retained as a *bonâ fide* remedy; that is, it may become the means of averting a fatal termination. But this differs from the teaching which considered it wise and pru-

[1] During the same year, 1854, under Skoda's treatment, out of 53 cases 31 were cured, 8 bettered, and 14 died. Of these, the disease lay 13 times on the left side, giving 10 cures, 2 deaths, and 1 improvement. It occurred on the right side 19 times, and of these 14 were cured, 4 bettered, and 1 died. In 12 cases both sides were affected, and of these the greater part died. Nine cases were complicated with extensive pleuritic exudation, and of these 1 was fully healed, 2 were bettered, and 6 died.—*Report for* 1854.

dent (as a rule with few exceptions) to bleed all cases of pneumonia coming under treatment in the earliest stage; a thing, by the way, that must and does rarely happen in a public hospital.

Such, some thirty years ago, was, I understand, the teaching at Vienna as elsewhere. But I met no man who would entertain for a moment that the change in the treatment of pneumonia had resulted from any change in its type. Their opinion seems to be this, that when physicians became more expert at the physical examination of pulmonary disease, they found that bleeding did not affect in any favourable manner the *real* progress of the disease, and, therefore, they were led to discontinue it.

The results seemed to justify the change; and thus, without discarding loss of blood as a remedy in pneumonia, they discarded the principle on which it was employed. The new ground on which they placed it was one, no doubt, of great importance, but statistics prove, beyond all question, that they very rarely found it necessary to summon its services to accomplish its new aims.

In other words, finding they did not attain *the ends* for which they bled formerly, they ceased to bleed *for these*, but continued to do so *for others*, in their hands apparently of rare occurrence.

They seem to be of opinion, however, that although there is, as the result of this change, a diminution of the mortality, it is not very great, but they think the recoveries quicker and much more satisfactory.

The cases in which I feel certain that bleeding was in no single instance practised are the following:—

Table IV.

1849. Division of the General Hospital for diseases of the chest. *Vide* Table III.,	121	cases, and these gave	17	deaths, or	14·0	p. c.
1854. In the Wieden Hospital, Vienna, where the treatment was symptomatic and exceedingly simple.—*Report for* 1854.	87	„	18	„	20·7	„
1854. Oppolzer's Clinical Wards, as shown, .	32	„	5	„	15·6	„
Hospital Practice, .	240	„	40	„	16·6	„
Practice of Prof. Sigmund. From his own records, dating from 1837, as a private practitioner, and from 1842 as a hospital physician,[1] . . .	743	„	104	„	14·0	„
Hospital and Private Practice,	983	„	144	„	14·7	„

[1] Although the average mortality was 14 per cent., it differed in hospital and private practice, the first being 17·0 and the last 11·0 per cent. In the note in which Professor Sigmund communicated these results, he thus describes his treatment:—"Rest in bed without increased heat; tepid watery drinks;

There is here, certainly, a mortality much less than the general mortality in Table I. How far this is attributable to the *one* common point of similarity, is very difficult to determine. In questions of this nature, it is almost impossible to say when you are associating similars with similars and when with dissimilars; and when credit is to be given to any single point of agreement for the production of the final result. Between these, in reality, there may be no connection; or, on the other hand, to some other unperceived point of similarity the whole may be due. The most incongruous elements may be brought together in the mass, and remain latent. The one fact, prominently brought forward, may hide the others or cause them to be overlooked.

The nicest discrimination is required in dealing with statistics on such questions, and we cannot be too cautious in our generalisations. There is invariably such a complexity in them, that it becomes difficult in the extreme to trace *the* cause of *the* result. If, indeed, it be possible to do it, since the effect almost always, on careful examination, appears to be the meeting point of a host of converging causes, which, in every individual case, differ in their nature, number, and force. At negative inferences, however, we may often arrive with considerable certainty. And the present case is one more or less of this character.[1]

Antimony and Mercury.—I think the quotations give an exaggerated idea of the frequency with which the preparations of these metals are employed. As far as I observed, they were rarely administered.

Blistering.—It will be observed that nowhere is mention made of this as a remedial agent. I never saw it used.

Diet.—Low diet is usually enjoined till the fever abates, which, in regular cases, according to Pleischl, has been observed to occur in a more or less abrupt manner between the seventh and ninth day. At the same time, the chlorides reappear in the urine. A good nourishing diet is then ordered, and stimulants, if thought necessary.

Duration of Treatment.—With reference to this point, I find that, in 1853, the cures range from four to twenty-eight days, and most of the deaths occur between the first and sixth day.

In 1854, the cures fall between twelve and thirty-nine days, but

where there was very great pain, friction with oil over the affected part and warm water fomentations; when there was frequent cough, sweetened water, very dilute orgeat, gum-solution with sugar; in obstinate constipation, enemata of syrup and water."

[1] An advocate for bleeding has lately arisen in the person of Wunderlich of Leipsig (*Archiv. für Physiol. Heilkunde,* Feb. 1856), who thus gives the results of 204 cases of pneumonia, treated by him during the five preceding years, excluding, however, 14 fatal cases, brought into hospital in extremis:—

1. Of the whole 204 cases, 17·06 per cent. proved fatal.
2. Of those on whom venesection was practised 6·38 per cent. proved fatal.
3. Of those who suffered loss of blood from any source, including epistaxis and menstruation, 7·89 per cent. proved fatal.
4. Of those who suffered no loss of blood 17·10 per cent. proved fatal.

the greater part between twelve and twenty-one, and almost all the deaths occurred within the first five days after admission (IV. Med. Div.).—*Reports for* 1853 *and* 1854.

Age of the Patients.—Of 463 patients, treated in 1854, the ages are given thus :—

Below 16		years	31
From 16	to 20	„	85
„ 21	to 30	„	147
„ 31	to 40	„	69
„ 41	to 50	„	45
„ 51	to 60	„	41
„ 61	to 70	„	16
„ 70	upwards		2
			436

Thus, pneumonia appears to be most frequent between the ages of 16 and 20, and this holds good of both sexes. Indeed, in the order of increase and decrease, they are throughout parallel. The period of childhood is not, properly speaking, represented in this Table, since no child under four, except for surgical ailments, is admitted into the general hospital, while, on the other hand, children are received into the special hospitals devoted to them till they are twelve years old.

Side of the Chest Affected, etc.—The care and precision with which the diagnosis is always made in the Hospitals of Vienna, render information derived from their records, on such a point as this, unusually valuable. The reports of the General Hospital for 1852, 1853, and 1854, and of the Wieden Hospital for 1854, give information on this subject. The sum of these makes the right side affected 653, the left 453, and both sides 114 times. The right side, therefore, is much more frequently affected than the left.

With regard to the lobe of the lung affected, the report of 1854 gives the following :—

Upper.	Middle.	Lower.	Together.
141	52	223	70

The lower lobe, therefore, is the one most liable.

Period of the Year at which it prevails most.—In 1849, 1852, 1853, and 1854, it attained its maximum in May, and in 1850 and 1851 in April. It may be said to be invariably most fatal and most prevalent in March, April, and May. I was much struck with the regularity of this, which, besides being constant, is strongly marked. I could see nothing in the Meteorological Tables published by Kreil to explain this. I think the same holds good on the continent generally, and in our own country.

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