marked at the right, had spread, we know not in how short a time, certainly within a few hours, until the greater part of the left lung was invaded. Now, whenever two separate centres of inflammation can be made out, whether or not in the same lung, you may expect a course of events quite different from that which is commonly associated with the name pneumonia. Such a beginning augurs a bad end. The consolidation will often spread with extreme rapidity, while the vital powers give way at once, almost in anticipation of the lung destruction, as though this latter were but the sequel and consequence of general failure.

Thus it happens that what is called "double pneumonia" demands a separate consideration. It may easily be mistaken. If, for instance, the consolidation occupy the lower and depending portions of both lungs, and be about equally distributed over the two, it is probably hypostatic, a consecutive inflammation due in great measure to physical causes. If, again, with consolidation of one lung there be crepitation, however small, over the other, this of itself is no proof that this latter is inflamed; it may be merely oedematous. Double pneumonia can hardly be reckoned unless, with the physical signs of consolidation complete in themselves, we have besides the inflamed spots so situated as to exclude the notion of hypostatic influences; situated, for instance, as in the present case, at the two apices, or at the apex of one lung and the base or the middle of the other. With such assurance of two separate spots of inflammation, whether in one lung or in both, I do not say that an ordinary pneumonia may not follow, which is orderly in its course and will recover of itself. I only say that, in all such cases, we have to fear and to watch for the precise event which happened in the present instance, namely, the rapid extension of inflammation to the rest of the lung. So soon as this fact of spreading has been ascertained, so soon may we be assured that we are in presence of a dangerous inflammation, which often shows no tendency to relax its hold, and in the treatment of which, as I believe, all methods are alike futile. This form of pneumonia was clearly recognised by Trousseau, who compared it with erysipelas. Although often of secondary origin, it would be impossible, I think, with our present knowledge, to connect it with any particular cause. In our own case, there was lardaceous change in the liver and kidneys, but this was not advanced; and, from the man's bodily frame and immediate antecedents, it was impossible to suppose any grave failure of these organs.

An inflammation such as this must be dissevered, not only from ordinary pneumonia with its open onset and tendency to quick recovery, but also from another form of consolidation of lung, equally rapid and equally fatal, which selects especially the starved and the drunken. There is a pneumonia—if you will call it so—almost peculiar to these people. They are found dying of it on doorsteps, or kneeling by the bedside already dead, and in the attitude of the last night, or wandering about the streets delirious. On *post mortem* examination, one lung will appear (I am quoting actual instances), not solid and fairly consistent, like this one of ours, but dripping with pus when cut, and breaking down into cream upon pressure. This purulent conversion (the reality of which may be easily demonstrated by the microscope), is sometimes accomplished with surprising rapidity, with no obvious disease elsewhere, no signs, indeed, except those of neglect and want, and probably a history of habitual drunkenness.

I ask you to regard these several forms of lung inflammation as distinct—distinct, as I believe, anatomically as well as clinically; but the anatomical distinction (on which I will not dwell at present), inasmuch as it may not be recognisable in life by physical signs, is of infinitely less importance than the clinical. We are told that these different results of pneumonia arise, not from a difference in the disease, but from the different circumstances in which the patients are placed. In the one case, early care, nursing, "nutrients", and medicine; in the other, neglect, exposure, and starvation. I shall not now dispute it. The attempt to bind disease by book definitions succeeds probably as well with pneumonia as elsewhere. I only ask you to observe that the difference exists, and that it is deep and radical. Nothing is more remarkable in the whole range of disease than the severity and suddenness of an ordinary pneumonic attack, the invasion of a large portion of lung with but a modicum of danger, and, presently, the rapid melting away of the morbid material, and complete recovery. Equally remarkable, however, is the conduct of these other inflammations, where either, as in the present instance, the earliest warning is afforded by pinched face, muttering delirium, and other plain signs of dying, while as yet but a small portion of lung is affected; or else the condition of the patient seems hardly different from that which want and intemperance might produce, until death reveals the completeness of the destruction which has been wrought so silently.

No more difficult task falls to the physician than this one of estimating the meaning and the gravity of a lung consolidation which is

known to be recent. It must be judged of by its circumstances. These, as I have endeavoured to show, may be perilous or assuring, and point to issues which the mere local condition often conceals, or even seems to contradict. A blind deference to terms, as that pneumonia should be this or that, or a simple trust in what (by a strange limitation) we call "physical signs", is often altogether misleading.

A SHORT ACCOUNT

OF

THE PROGRESS OF PLAGUE FROM ITS REAPPEARANCE IN 1853.*

By J. NETTEN RADCLIFFE, M.R.C.S.Eng.,

Vice-President of the Epidemiological Society.

IN deference to the wishes of the President, who is of opinion that it would be useful to lay before the Society, at the present moment, a general statement of the facts relating to the reappearance of plague in the East, I have prepared the following summary of information in the possession of the Society, adding such facts as are known relative to the recent manifestation of the disease on the continent of Europe, in Eastern Russia.

"The great drama enacted by plague for over a thousand years" (to use the words of August Hirsch) closed in Europe in 1841; in the Levant generally in 1844. A century and a half of freedom from the disease in this country, and in the greatest part of Western Europe, had not effaced the popular terror of it, when the malady disappeared from all its most ancient haunts, and Europe and the Levant believed themselves to be freed from an evil which had scourged their populations for many generations. They believed however doubtingly, as is shown by the retention of their laws against plague unmodified, and by the state of preparedness maintained with regard to them. Moreover, certain prescient physicians held that the disappearance of plague gave no warrant of its permanent extinction. Among this group of far-seeing men, our venerated member and former President, Dr. Gavin Milroy, stands pre-eminent; and I may be pardoned if I interrupt the course of this paper for a moment to express my deep regret—a regret which I feel assured is not peculiar to myself, but is common to all the members of the Society—that he cannot be with us to-night, less in consequence of advanced age than, I grieve to say, of painful sickness. To Dr. Milroy we are indebted that the study of plague has never ceased to have great interest for the medical profession in this country, and that as a matter not only of literary or historical research, but also of true practical interest, as illustrating important questions of policy in reference to public health requirements. Dr. Milroy's writings on plague, and on subjects connected therewith, have just now a peculiar value; and the Society must feel that his absence from its meetings, at a time when the subject is under consideration, is a most grievous loss.

In 1853, ten years after the disappearance of plague from its familiar haunts, the disease showed itself anew in the East; and in the course of the twenty years 1853-72, a series of outbreaks occurred of interest, as it first seemed, rather to the epidemiologist than to the international hygienist. Outbreaks occurred in Western Arabia, 1853; the district of Bengazi, Regency of Tripoli, North Africa, 1858-59; Persian Kurdistan, 1863; Mesopotamia, 1867; and Persian Kurdistan again, 1871. These outbreaks occurred in localities widely separated from each other (not even excepting the two in Persian Kurdistan), and they were curiously circumscribed; but the information we possess with regard to them leaves no reasonable doubt that they were outbreaks of bubonic (true) plague.

In the winter of 1873-4, and spring of 1874, a new phase of development, so to speak, of the resuscitated plague began. Within this period, the disease broke out in three different countries of the East, all of which had suffered from the malady in the earlier period of its reappearance. These manifestations occurred practically contemporaneously in Mesopotamia, in Western Arabia, and in the district of Bengazi, North Africa. The outbreaks in Western Arabia and Bengazi affected, more or less, the localities in which the disease had prevailed in 1853 in the former country, and in 1858-59 in the latter; and they were as circumscribed as those of the years last named. The outbreak in Mesopotamia occurred on the verge of the locality which had been the scene of the outbreak of 1867, and in its progress included that locality. But this outbreak of 1873-74 proved to be the beginning of a prevalence of the disease, which continued throughout the years 1874, 1875, 1876,

* Read before the Epidemiological Society, February 26th, 1879.

and 1877, the area of diffusion extending each year until 1876, when it included the whole of Turkish Arabia (Irak-Arabi) bordering upon the rivers Euphrates and Tigris, and extending between the Euphrates and the Syrian Desert. In the third year of prevalence, 1876, it is estimated that not less than twenty thousand persons in the infected district were killed by plague. The loss of life in Bagdad from the disease during the years 1876-77 probably exceeded five thousand.

While this diffusion in Mesopotamia was in progress, and in the year 1876, plague broke out early in the year in the Shuster district, Khuzistan, South-West Persia, killing there about two thousand five hundred people. Later in the same year, the disease showed itself in one of its former haunts among the Himalaya mountains, North-Western India, namely, in the district of Kumaon, and prevailed there several months. About the same time, cases of plague, in isolated instances or in groups, were recorded in Northern Persia, in more than one locality of the province of Astrabad; and in the spring of 1877, the malady declared itself in the province of Ghilan, attacking especially the capital town, Resht, and the surrounding district, where it is estimated to have killed some four thousand people before the close of the year. The same year, cases of plague probably occurred at Baku and other places on the Caspian littoral of Caucasia; and it has recently been made known that the disease, also in the same year, was scattered widely in European Russia—thirty-two cases of the malady were reported to the medical department of the Imperial Government as having occurred in the south-western province of Tchernigow, and forty-one cases in the north-eastern province of Viatka, the total cases officially reported in the Empire numbering two hundred and forty-one. Details are still wanting of the general distribution of these cases; and no information has yet been received of the movements of plague in Russia in 1878, except so far as relates to the outbreak in Astrakhan.

I have thus briefly sketched the history of this new development of plague, from its first appearance in the East to the period of invasion of Europe by the disease. The numerous outbreaks to which reference has been made have not passed without largely enriching the literature of the subject. I would especially refer to the contributions of Dr. E. D. Dickson, the physician to the British Embassy, Constantinople, and of Surgeon-Major Colvill, attached to the British Residency, Bagdad, to this Society; also to various official reports on the subject by the latter gentleman. I would further refer to important monographs by Dr. Tholozan, one of our corresponding members, physician to the Shah of Persia; Dr. Castaldi, Ottoman delegate to the Board of Health, Teheran; Drs. Naranzi and Arnaud, members of the Ottoman medico-sanitary staff; Mr. Planck, and the sanitary commissioner for the north-west provinces and Oudh. These writers have furnished us with a large amount of information as to the disease and the conditions favouring its prevalence, which is invaluable in view of the malady having again to be dealt with on European soil.

With reference to the recent outbreak of plague in the province of Astrakhan, I propose to follow chiefly the account given in an official report made by Dr. Döppner, the principal officer of the Cossack forces, who was on duty in the infected district at the time the disease first manifested itself there in an epidemic form. He states that about the middle of November, 1878, attention was called to the prevalence, in the stanitsa of Vetlianka, on the right bank of the Volga, of a febrile disease, in the course of which, on the seventh or eighth day, occurred swellings of the lymphatic glands, in the groins or in the armpits. Dr. Döppner visited Vetlianka on November 30th, and saw there eight patients, none confined to bed, exhibiting the following symptoms: moderate low (*debilitante*) and intermittent fever; the appetite good, and organic functions normal; suppurating glands in the groin or armpit. The duration of this sickness was from ten to twenty days, and all who suffered from it recovered. Dr. Döppner states that he had observed a similar affection in 1877, when five persons under his observation were attacked with it at the advanced post, Mount Caucasus, among a body of forty individuals.

After December 9th, a new form of disease appeared at Vetlianka. Many persons were seized by it and several succumbed. Dr. Döppner visited the stanitsa for the second time this month, and he found there twenty-three patients suffering as follows, the symptoms occurring in paroxysms: violent frontal headache, pains in all the limbs, slight shiverings preceded by burning heat of body and eyes, the abdomen distended, liver enlarged, and the pulse from 100 to 120. These symptoms persisted for two or three days, and were followed in some favourable cases by perspirations and a general abatement. But in the majority of the cases, after two or three days, the symptoms became aggravated, there were delirium, sleeplessness, restlessness, a temperature of 42 deg. C. (107.6 deg. Fahr.), dryness of the tongue, frequent involuntary dejections, and scanty reddish urine. Death followed upon the second, or more rarely the third, paroxysm. The swellings and inflammations of the

lymphatic glands observed in the first phase of the epidemic occurred in this second phase frightfully exaggerated, and determining a fatal result in from twelve hours to three days.

The attack in this second phase was generally ushered in by palpitations of the heart, irregularity of pulse, vomiting, vertigo, oppression of the chest, expectoration of clear liquid blood, pallor of countenance, an apathetic aspect, the eyes dull and the pupils dilated. Then followed for three or four hours a state of complete prostration, succeeded by excessive feverishness, delirium, suppression of urine, the bowels being constipated. To all these symptoms were added spots on the body, of a size varying from a pea to a piece of ten copecks; the patients exhaled a peculiar odour something like honey; and death supervened in a state of collapse, the patient being insensible. The bodies began to decompose at the end of from two to three hours. The mortality became greater and greater as the epidemic increased, and after December 26th every person attacked died.

Dr. Döppner hesitated to designate the disease plague. He expressed the opinion that it was either a most acute form of typhus, or a peculiar form of plague (*pestis Indica*, Hirsch), or a new malady intermediate between typhus and plague. He does not seem to have been aware of the existence of bubonic plague in Russia ("Siberian plague" as it is there termed) during the previous year.

Dr. Döppner describes Vetlianka as situated in the district of Yenotaier, one hundred and ninety-four versts (verst=two-thirds of a mile, English) from Astrakhan, twenty versts from Nicosky, and ten versts from Prichiba. It lies on the right bank of the Volga, in an open situation, and at a considerable elevation above the level of the sea. The soil is clayey, and the vegetation (wormwood and feather-grass) scanty. The stanitsa has existed two hundred years. It has a population of about 1,700, occupying three hundred houses, all of which are constructed of wood. These buildings, of medium size, are stated to have uncleanly interiors. The cemetery is situated one hundred sajènes (equal to seven hundred feet) to the west of the stanitsa. The inhabitants are all engaged in fishing, and no other industry exists in the place. Dr. Döppner refers to a particular fishery at the foot of the hill, adjacent to the stanitsa, as having attracted the attention of the Minister of the Interior—I assume, on account of its especial filthiness; for certain of the official accounts describe the fishing stations in this district, and the tanks used for salting fish, as in a state of revolting foulness. The old inhabitants affirm that, when cholera prevailed in the province, Vetlianka suffered more than neighbouring localities. Ordinary contagious diseases—for example, scarlatina, measles, "fever", etc.—are said to be always more fatal there. Syphilis was very prevalent in the stanitsa in 1859 and 1860, and "inflammatory fevers" in 1864.

During the recent outbreak, from the middle to the end of December, the weather was moist, foggy, with alternations of temperature varying from +2 deg. C. (35.6 deg. Fahr.) to +14 deg. C. (57 deg. Fahr.). There was little wind—sometimes a feeble current of air from the south-west; and a fine rain fell at intervals. On December 24th, snow fell, but quickly disappeared.

An official telegraphic report from Tsaritszin, on the 17th ultimo, stated that plague had ceased throughout the infected district. Nevertheless, measures were being actively carried out to enclose it with a sanitary cordon, which it was hoped to complete by the 27th ultimo. The extraordinary measure has, moreover, been taken, under a ukase, dated February 13th, 1879, of declaring the infected district in a state of siege, that is to say, under military law; and a governor-general has been appointed over the provinces of Astrakhan and the neighbouring provinces of Saratov and Samara, with exceptional powers (that of proclaiming any part or the whole of these provinces in a state of siege, among others), in order to secure the greatest promptitude and efficiency in the execution of any measures which may be deemed necessary against plague.

Eight villages or districts are reported to have suffered especially during this outbreak—six on the right bank and two on the left bank of the Volga. All the places lie between Astrakhan and Tsaritszin; and the infected area appears to extend about a hundred and fifty miles along both banks of the river. The data as yet received do not admit of any general statement being made of the number of persons attacked, and the loss of life.

I do not propose to offer any observations on the foregoing summary of facts, believing that I shall best meet your wishes, Mr. President, by confining myself to the bare recital.

THE Belfast Board of Guardians last week passed a resolution requesting the Local Government Board to direct their Inspector, Dr. Roughan, to make a special report on the present condition of the workhouse.