pen-shaped distal end of the broader, darker, coarser base, the organ can be traced backwards as a long, colourless, cylindrical, slightly wavy filament, the free end of which, lying just inside the cloaca, is turned backwards in the case of one of the worms, forming a sort of crook like the handle of a walking stick. The shorter spicule is about the same size at the base as the longer, but its free end is slightly thicker and coarser, and can with difficulty be distinguished from the sheath in which it lies. In the case of the short spicule the chitinous character of the base seems to be extended along the dorsal aspect of the sheath as far as the free end of the organ, which is somewhat sharply turned towards the cloacal orifice by impinging on a sort of chitinous flange or projection. The cloaca terminates in two somewhat protuberant lips, an anterior and a posterior; but I failed to make out distinctly any preanal papillæ. Faint traces of the remains of three pairs of postanal papillæ, which the maceration the specimens were subjected to has rendered indistinct, are possibly faintly discernible. I was able, I thought, to make out in one of the male worms that the junction of œsophagus with intestine is marked by a slight yet distinct constriction (B); possibly this is artificial. In the case of two of the female worms the uterine tubes could be traced forward past the vulva for a considerable distance; the vagina, formed by the union of the uterine tubes, therefore courses backwards to the vulva. I also remarked that although the male worms were quite colourless, the females in all three instances had a distinct brownish tinge.

Owing to the manifest longitudinal shrinkage and inextricable coils of the male worms, it is impossible to give even an approximate estimate of the length of these particular parasites. Allowing for this shrinkage, the following measurements of some of the details may be relied on as being fairly accurate.

	Male. mm.	Female. mm.
Diameter of head (c)	0.035	0.030
Diameter of neck... ..	0.030	0.025
Diameter of body (greatest)	0.100	0.185 (D)
Diameter of body 0.05 mm. from tip of tail	0.030	—
Diameter of body at base of short spicule	0.080	—
Distance from anus to tip of tail, following curve	0.130	0.170 (E)
Distance of vulva from mouth	—	1.200
Length of œsophagus ?	1.000	—
Length of short spicule, following curve	0.200	—
Length of long spicule, following curve... ..	0.600	—
Length of chitinous base of short spicule	0.120	—
Length of chitinous base of long spicule	0.170	—

It is of the utmost importance that the zoological features of these and similar parasites should be accurately made out, as great confusion is apt to arise in so complicated a subject from careless or vague statements. Some time ago Magalhaes gave a very complete and careful description of two mature filariæ—male and female—which had been found in the left ventricle of a child in Rio de Janeiro. Until I examined Dr. Maitland's filariæ I was inclined to believe that the parasites Magalhaes described were the mature *filaria bancrofti*. Now, however, on comparing Maitland's filariæ with the drawings and measurements of Magalhaes's filariæ, I am convinced that the worms are not the same, and that they belong to different species, that of Maitland being *filaria bancrofti*, and that of Magalhaes being quite a new species. In this connection I may mention a circumstance with which I have lately become acquainted, and which may throw some light on Magalhaes's filariæ. In slides of blood which Dr. Newsam, of St. Vincent, West Indies, sent to me some time ago I have in two instances found a number of very minute, sharp-tailed, sheathed, embryo filariæ, which are present in the general circulation both by day and by night, and which, judging from their size and absence of periodicity, are certainly not *filaria nocturna*—the free embryo of *filaria bancrofti*. Considering the geographical proximity of St. Vincent to Rio de Janeiro and the hæmatozoal character of Magalhaes's filaria, it seems not unreasonable to suppose that the latter may be the parental form of these minute St. Vincent filariæ.

It is evident that much work has yet to be devoted to the study of the bloodworms of man before the subject is thoroughly worked out and understood. Already we are partially acquainted with at least four species, possibly five;

observers must therefore exercise great care in arriving at a diagnosis of any bloodworm they may encounter, and must always be alive to the possibility of its being a species other than the common *filaria nocturna*.

ON INFLUENZA, 1893-94.

By SIR PETER EADE, M.D., F.R.C.P.,
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MORTALITY.

DURING the three months ending mid-February, 1894, influenza was again exceedingly prevalent in Norwich and the surrounding districts. After the blizzard of the first week of January, with its attendant and consequent very low temperature, the fatality of the disease suddenly increased, so that in the week following this storm the mortality of Norwich from chest diseases registered as influenza, bronchitis, etc., and, excluding eight cases of ordinary phthisis, amounted to 47 cases. This was at about the ratio of 27 per 1,000, due to this cause. It is notable that these deaths were almost exclusively of either very young, or of elderly or aged persons. The total mortality of Norwich in this week rose to 60 per 1,000; whilst in the following week it amounted to the lesser but still very high number of 42 per 1,000. In the week next succeeding, the mortality fell to the more normal rate of 21 per 1,000.

Our experience of this disease, both in its uncomplicated and complicated forms, has consequently again been very large. And it seems worth while to inquire whether any fresh light has been recently thrown upon it, and also whether we have obtained any fresh information as to the best method of treating or managing it.

SYMPTOMS.

Continued observation has added little to our knowledge of the symptoms. They still are, briefly, sudden sharp fevers, terminating in the simple cases almost abruptly at the end of three or four days, and then a reduction of the temperature to normal, or something below this. But close observation of the thermometric register in acute and especially in prolonged and complicated cases has shown how constantly this temperature runs a very definite cyclical course; how usually it steadily rises after about 8 A.M., and reaches its highest point (varying from two to five degrees above normal) in the afternoon or late evening. It will then constantly remain nearly stationary until about 12 P.M., after which time it begins steadily to fall, reaching its lowest point at 6 or 8 A.M.; in some cases almost punctually at 6; after which it again begins to rise; and it is remarkable that the temperature registered at this early hour will often be 99° to 98°, or even less, even when a rise to 101° to 102°, or more will again take place during the ensuing day or evening. May it not be fairly asked whether this cyclical course does not indicate a fresh multiplication or swarming of the micro-organisms of the disease during the period of the higher temperatures, and a corresponding diminution of the activity of the germ life in the six or eight hours after midnight?

The peculiar brightness of the eyes without suffusion of the conjunctivæ has been constantly present at first in the severer cases; so also has a red suffused condition of the fauces; and very frequently, as observed by Dr. Shelly, a vesicular eruption has been present on the soft palate, followed often by a soft follicular exudation—more often observed on the left side of the palate—and then later on occasionally by a dry desquamation or peeling of the mucous membrane of this part. The tongue in severe cases, and especially in old persons, has often been brown, dry, or almost horny for several days. Eruptions on the skin, erythematous or papular, have been not uncommon; and, as in other years, there has constantly been much general relaxation of the skin, shown by a warm, soft, perspiring (in every degree) condition of this membrane. Albuminuria has also been present in a considerable proportion even of the simple cases, but it appears to have passed away without causing serious special symptoms.

Constipation has often been very marked and troublesome from the first, even in those whose bowels were previously in

a normal state. The bowel has apparently suddenly become feeble and insensitive, and repeated and often strong aperients as well as enemata have frequently been necessary, to the great discomfort of weakly patients. It has been observed in several instances that the expulsive power of the rectum has returned almost suddenly at the end of between five and six weeks. On the other hand, as in former years, diarrhoea and sickness have been not infrequent at first and for a time.

PATHOLOGY AND PHYSICAL SIGNS OF THE PULMONARY LESIONS.

In almost all the severer cases there has been some affection of the bronchial membranes, indicated by sounds of the most varied character—sibilus, rhonchus, sibilant rhonchus, with or without crepitation, either large or what is called "large-fine crepitation." The amount of dulness on percussion has been comparatively slight, and neither the voice nor the breath sounds have ever indicated any large amount of pulmonary condensation. In fact, so marked an absence of this has there usually been that it would seem probable that the diseased process, as a rule, scarcely penetrates beyond the smallest bronchial tubes, and, unlike that of ordinary pneumonia, involves but slightly the pulmonary vesicles or true parenchyma of the lung. This view agrees with the results of microscopical investigation, and would seem to be confirmed by the fact that even in the cases in which the lung is most extensively affected a deep inspiration will usually cause a current of air to pass, as it were, through the crepitation, and often produce a sound of pure or pronounced vesicular respiration beyond it.

The morbid breath sounds are varied and peculiar, but they all resolve themselves into those produceable by a swollen mucous membrane of the tubes, or by this *plus* adherent mucus secreted by it. In fact, the true influenzal lung affection would, as has been said, appear to be bronchitic, and rarely of the parenchyma of the lung, and, therefore, neither a true pneumonia nor what is termed congestive pneumonia. It differs from ordinary bronchitis, in that the two lungs are generally very unequally affected, and that their bases are by no means so chiefly and uniformly the seat of the *râles* as in the ordinary disease of that name. It differs from ordinary pneumonia in that in addition to the locality (usually the base of the lung) principally affected, there are always, or nearly always, varied bronchial *râles* in the lung above this, or even in both. It has been noted that the right lung has in the majority of cases been more extensively affected than the left. May not this be due to the larger size of the opening at the tracheal division on the right side allowing of a greater indraught of the germ-carrying air, and so of a larger dose of the infective agent being introduced into this lung?

The researches of Professor Klein¹ and others have proved that the bacillus influenzae abounds in the mucus secreted by the air tubes (being also found in the mucous membrane of the mouth), and it would seem almost certain that the impingement of the germs upon the bronchial surfaces, and their development there, is the essential local irritative cause of the resulting phenomena, and of their continuance throughout the illness. In other words, the pulmonary portion of the disease is chiefly, if not absolutely, a purely local *parasitic* affection, every sibilant or rhonchal point indicating the growth on that spot of a smaller or larger colony of influenzal bacilli; other distant inflammations or affections being due, either to the development of the streptococcus,² or to the effect of the produced and absorbed ptomaines or secretion products of the bacillus. Up to the present time, compared with 1893, there has been a much-diminished number of cases in which the nervous centres have been involved, either primarily or actively, or with the well-known parietic sequelæ.

TREATMENT.

As to treatment, continuous experience shows that as we have a parasitic and infective disease to deal with, so—as in other zymotic affections—all active efforts to cut short the fever and stamp out the disease are futile or even hurtful.

See Report on Influenza to the Local Government Board, 1893, by Drs. Parsons and Klein.

² Klein, *loc. cit.*, p. 125

Depressants, febrifuges, sudorifics, are of only occasional value. A few doses of either antipyrin or salicylate of soda quite at the first often seem to soothe and comfort a little; but my experience shows that these doses should not usually exceed 5 to 10 grains of either at shorter intervals, and that even these should not be given too freely, and scarcely at all if the patient is either old or weakly. Ammonia has almost always been suitable and helpful, and either from the first or within two or three days of the commencement of the illness, when there is depression and bronchial complication, a mixture composed of aromatic spirits of ammonia with chloric ether and compound tincture of bark, has been largely used and found to be exceedingly suitable and comforting. Where the patient has been old or feeble, or there have been symptoms of heart weakness or failure, the sulphuric ether has been well substituted for the chloric ether. In a good many cases, where there has been much soft cough, and where the chest *râles* and crepitations have been widespread and abundant, it has yet been noticed that the expectoration has been almost *nil*. In others it has been very scanty, and again in others—especially the old and weakly—it has been copious and almost purulent. In some of these very decided relief has been obtained by inhaling from a pocket handkerchief frequently and well into the lungs, some 10 or 15 drops of the oil of eucalyptus. Doubtless other similar antiseptics inhaled are also useful, but this special oil has been so serviceable that it may well be recommended as both not disagreeable and sufficiently potent.

In prolonged cases, where the age is considerable, the expectoration muco-purulent, and exhaustion threatening, good doses of iron have been of unquestionable service. In one especial case, aged 82, which recovered, half a drachm of the tincture of perchloride of iron, with sulphuric ether and quinine, was taken every six hours for at least ten days, with the most manifest advantage.

Attention has recently been called by Dr. Wilks to the occasional value of opium in this disease. It is of unquestionable utility in soothing the cough and procuring sleep, especially in the form of Dover's powder, and does not appear to disagree with the patients or with the disease. But sulphonal has often seemed to be of at least equal value.

Of the numerous specific remedies recommended for influenza I can say little. Perhaps the bicarbonate of potash and benzol are those which have been most pressed upon our attention as "speedy cures" for the disease. My experience of either is not very large, nor such as to confirm the advantages claimed for them. Moreover, theory deduced from our knowledge of the nature of the disease is against them, as well as the analogy of similar specific fevers.

The experience of the past four years shows that the influenza begins by scattered cases in November or December; that its greatest virulence (except in 1891) has been in the months of January and February; and that it has practically died out by the end of May, that is, when the sun-warmed air is again that which we breathe. The same experience has also told us that exposure to cold and the inspiration of air of very low temperature will constantly convert a simple case, that is, with fever only, into one complicated by bronchial or pulmonary inflammation. Why is this? The normal temperature of the tissues, and doubtless of the bronchial tubes, is 98.4° F., whilst that of the air inspired varies with the season from about 40° to 70°. The effect of inhaling extremely cold air—say, of from 20° to 30°—is doubtless partially to benumb the sentient surface of the bronchial mucous membrane, and so to diminish its resisting power to the invasion of microbial life. Further, the advent of the influenza with the cold weather of our winter proves almost certainly that the bacilli influenzae thrive and flourish most in a medium of low temperature. We can readily understand, therefore, how it is that the inhalation of cold air may in both these ways favour the development of the causative germs.

A sudden outbreak of the disease has been known to follow the breaking up of a frost and the thawing of the snow. On the other hand, it has been shown that influenza germs are killed or rendered very inactive by drying. Again, the advent of "bronchitis" and "pneumonia," if not already present, can almost certainly be prevented by keeping the patient during the febrile stage in a very warm atmosphere, so that

the air inhaled shall not be of a lower temperature than from 60° to 65°. As the germ thrives in moisture and fades in dry conditions, it is probable that the dryness of the air in a very warm room is of almost equal importance with the temperature.³ And this would seem to have a distinct bearing upon one point in the treatment of the "bronchitis." It is very usual in such cases to set the "bronchitis kettle" to work upon the stove, and as far as possible to keep the atmosphere of the room impregnated with moisture. But if the influenza germ loves moisture, and dies with dryness, this practice must necessarily be distinctly injurious; and, indeed, even in cases of ordinary bronchitis and pneumonia I have often thought the propriety of the use of this kettle at the very least doubtful, for necessarily the moisture in the air speedily becomes condensed and falls, with the liability to produce damp sheets, damp pillows, damp carpets, and damp walls.

ON THE TREATMENT OF DETACHMENT OF THE RETINA.

By J. R. WOLFE, M.D., F.R.C.S. Ed.,

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It is now nine years since I demonstrated in the National Ophthalmic Hospital of Paris my operation in cases of detachment of the retina.¹ The recollection of one case is still vividly impressed upon my mind. When the eyes were opened on the fifth day after the operation, and the patient, Madame B., cried out, "Mon Dieu! je vois!" I felt as if my head were touching the stars. The operation was then on its trial. A number of successful cases have since been reported from my Glasgow clinic and by others.² But there is something intensely interesting in the case which I am here to record.

On November 23rd, 1893, some days after my arrival in Melbourne, I was asked by one of the leading physicians to meet two well-known oculists in consultation in the case of the manager of a large financial establishment in Australasia, who became totally blind from detachment of the retina of both eyes. He is a highly esteemed citizen, and his case has elicited the sympathy and concern of all classes of the community.

CASE.—Mr. W. C., aged 59, of excellent health, six feet high, never had an illness till two years ago, when he suffered from an attack of influenza, which has left a tendency to frequent recurrence of naso-pharyngeal catarrh. He never had any eye trouble, but he is myopic (M. 6 D) without posterior staphyloma. About a year ago he began to feel some trouble in his left eye. He saw frequently what appeared like a shower of rain before him, and in shutting his eyes alternately he found that this optical delusion was owing to the condition of his left eye. The sight of that eye gradually deteriorated until it was entirely gone. In September last year his right eye began to be similarly affected, for which he was treated; but the disease made rapid progress so that he could not sign his name, and had to do it by means of a seal. On November 20th, however, he could not even see where to affix the seal.

The condition of the patient on November 23rd was: Left eye could not see the flame of a lamp before him in any direction; right eye could see the flame only outwards and downwards but not upwards and inwards. The map of the visual field, taken some days previous to the consultation, showed great limitation with central scotomata. But it was taken under unfavourable conditions, as he could then scarcely see the white spot of the perimeter. Ophthalmoscopic examination showed large retinal detachment in the

lower and outer area with general retinal engorgement in both eyes. In the left a piece of retina was floating in the effusions, and the region of the macula was invaded.

The patient was ordered to keep the recumbent position for a few days, with the view of causing the effusions to gravitate downwards, and also to enable me to ascertain, by repeated examinations, where the effusion tended. The recumbent posture cleared up some part of the fundus.

On November 30th, with the assistance of my *confrères* and the physician in attendance, who administered chloroform, I operated on the left eye, the one first affected and the worst of the two. I made a vertical incision into the conjunctiva, less than half an inch long, corresponding to the region of the detachment. The lips of the wound were kept separated in a horizontal direction by means of two strabismus hooks. I then opened Tenon's capsule, laid bare the sclerotic and rotated the eyeball in such a manner as to expose the corresponding part towards which the fluid inclined. Into that part I introduced a narrow sclerotome obliquely, in such a manner that the edges of the scleral wound should overlap each other and not remain gaping when the instrument was withdrawn. Only two drops of yellow coloured fluid followed the withdrawal of the instrument. I then introduced into the wound my fine silver spatula, and pressing upon the lips of the wound a little more fluid came. After a few moments' rest I again introduced the spatula and rotated the eyeball so as to incline the cornea downwards and outwards, when there came a considerable quantity of fluid. After using friction upon the scleral wound, I brought the edges of the conjunctiva together by means of one silk ligature. The dressing consisted of court plaster, dry lint, and a bandage to the eyelids. No reaction occurred. On the fifth day the eyelids were opened, and everything looked well. The seventh day after the operation, the ligature being still in the conjunctiva, we examined the operated eye, and found that he could distinguish features and see colours. The visual field, taken in a rough way, was found satisfactory. On December 22nd vision was improving. He could see the time on a watch, and could write a short note with pencil. He left town for his country house, where on December 29th he had a smart attack of influenza, which lasted for a few days. This, however, did not affect his sight.

On January 10th the visual field was taken by M'Hardy's

Left eye: The continuous line indicates M'Hardy's average normal field and the dotted line shows the patient's usual field after operation.

perimeter in the presence of the physician in attendance and one of the ophthalmic surgeons. The right eye had improved so that he could see persons with the outer part, and objects did not appear crooked as before. We intended to have operated on this eye also, but owing to the loss of time

³ I have not overlooked the fact that Kitasato states that in culture experiments the bacilli do not thrive at temperatures below 37° C. (=82.2 F.). But he further says that in gelatine at this temperature the cultures soon die; and, moreover, the two conditions in many ways are not comparable.

¹ Communication addressed to the Académie de Médecine of Paris, October 14th, 1884; La France Médicale, and BRITISH MEDICAL JOURNAL, December, 1884.

² BRITISH MEDICAL JOURNAL: Lancet, July, 1885; Original Contributions to Ophthalmic Surgery, Churchill, 1890; Report of M. Coppez to the French Ophthalmological Society, BRITISH MEDICAL JOURNAL, June 4th, 1887.