Many of the sufferers among the white soldiers were privates or petty officers. This kind of mutilation was done mainly by the Gallas—Abyssinian irregular mounted horsemen, brave men but notorious for cruelty in war.

Fiaschi's descriptions of the methods employed in mutilating the prisoners of war, wounded and unwounded, black and white, corresponds with those depicted on the walls of the temple at Medinet Habu. The object of the mutilation by the Gallas was to take the parts removed to their women. The Gallas rode about with these disgusting trophies transfixed on their spears. The greater number of the dead were eviscerated. It is well known that men can survive the complete removal of the external genitalia even when it is carried out in the rude fashion depicted on the walls of the temple at Medinet Habu.

A religious sect in Russia known as Skopski practise complete removal of the external genitals of the male as an initiation ceremony. The act is known as the Royal Seal. This extraordinary sect was founded by Andrew Selivanof (died 1832), and the initiation ceremony of removing the external organs of generation is founded on the famous argument on divorce. "For there are some eunuchs which were so born from their mother's womb; and there are some eunuchs which were made eunuchs of men; and there be eunuchs which have made themselves eunuchs for the Kingdom of Heaven's sake" (Matt. xix, 12). That the Skopski remove the male genitalia completely is proved by a specimen in the Museum of the Royal College of Surgeons, showing the effect on the prostate of this curious religious act. Religious enthusiasts in England occasionally endeavour to make themselves eunuchs, but attempts at self-castration are rarely successful.

MUTILATION OF THE CORPSE.

To murder a person and dismember the dead body from sheer hate is a practice repugnant to most minds, but it is widespread and a common mode of expressing contempt and hatred. The treatment of Guy Fawkes and his co-conspirators shows that the State endorsed the mutilation of the bodies of traitors. After these men were hanged, their heads were cut off, the bodies drawn and quartered, and the heads set up on the gates of the city—for the rooks and crows.

Tyburn gallows stood near the Marble Arch, and I have often looked at the rook that perch and build in the tall trees in Connaught Square hard by the tablet that marks the spot where the gallows stood, and wondered if they are descended from the rooks that may have pecked out the eyes of Perkin Warbeck, Jack Sheppard, Jonathan Wild, and the like; or sniffed the skeletons of Cromwell and Ireton when they were exhumed and hung on the gibbets.

Whilst expressing horror at atrocities committed by Turks, infidels, and savages on the quick and the dead, it is worth mention that early in the fifteenth century the Welsh under Glendower committed atrocities on English soldiers. Shakespeare represents the Earl of Westmoreland informing Henry IV of these facts in unmistakable terms:

There came
A post from Wales laden with heavy news;
Whose worst was, that the noble Mortimer,
Leading the men of Hereford to fight
Against the irregular and wild Glendower,
Was by the rude hands of the Welshman taken,
And a thousand of his people butchered;
Upon whose dead corpse there was such misuse
Such beastly shameless transformation,
By those Welshwomen done, as may not be
Without much shame, retold or spoken of.

Even as late as the Wars of the Roses it was a common saying—

Priests pray for enemies, princes kill.

Certainly they cut off the heads of important men slain in battle and exhibited them. The Earl of Salisbury revolted against Henry IV, and lost his life. The gory head of the earl was welcomed into London by a procession of

abbots and bishops, who went out singing psalms and thanksgiving to meet it.

For civilized countries respect for the dead body is almost a fetish. The corpses of royal persons, and the rich, are often wrapped in lead and encased in polished oak. The bodies of common mortals are put in coffins made of elm, because it is cheap and withstands water better than other kinds of wood. In the formal Christian burial service we read, "though worms destroy the body," yet with singular perversion coffins are, as a rule, buried beyond the depth at which earthworms flourish.

The frequency with which man, savage and civilized, mutilates his enemy, in frenzy and in spite, is part of his animal nature. Here is a curious example from otters:

FRACTURE OF THE OS PENIS OR BACULUM.

Many mammals, especially the carnivorous, have a bone in the penis. It is also present in squirrels. Oldfield Thomas noticed that the os penis in squirrels shows such striking differences in the various species that he finds it a more reliable guide in classifying the members of this difficult family than their teeth. He thinks it is more convenient to call this bone the baculum—a little stick.

Otters have a bone in the penis, and the two divergent knobs are invested with the reflexion of the prepuce which covers the glans. The end of the urethra emerges in the interspace of what may for convenience be called the terminal condyles of the bone (Fig. 3).

Mr. Gerald Uthwatt, a keen otter-hunter, collected the "penis bone" of otters for a hobby, and noticed, not infrequently, that the bone is broken and healed. It is difficult to account for such fractures unless we know the habits of these animals. When male otters fight, each combatant tries to seize the external genitals (cods) of its adversary. Otters possess powerful jaws and sharp teeth, and their ability to break the baculum, notwithstanding its hardness, need not be a matter for surprise. A similar fracture has been observed in a seal. T. N. Arnold shot a seal in the Caspian Sea. The baculum of the animal had been broken, but the fragments had firmly united. The bone had been broken at a spot corresponding to that in the otter. S. Alpheraky sent a short account of the specimen and a drawing, to the Zoological Society, London. He found it difficult to offer an explanation of the cause of the injury. Surely male seals are as quarrelsome as otters! This is a mild atrocity of war compared with the awful vengeance man suffers at the hand of man!

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THE SPREAD OF INFLUENZA IN AN INDUSTRIAL AREA.

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EXCEPTIONAL opportunities have perhaps been afforded for making the observations set forth in this paper, both by reason of certain characteristics of the neighbourhood and by reason of the temporary shortage of medical men; and because a similar opportunity might not early arise again, these observations are placed on record.

The area in which they were made contains a population of about 11,000, mainly drawn from the artisan class, and while being a portion of Halifax, it is separated from the town proper by a deep ravine in which runs a railway and small river; a bridge forms the only main connexion with the town.

By reason of open spaces and workshops, seven separate divisions of this area can be recognized which lie on a slope rising westwards and northwards from the main connexion to the town. Westward there are Range Bank and Claremont districts, the latter being divided into Claremont proper and Horley Green; and northward from the bridge there are Haley Hill, Woodside, Akroydon, and Boothtown districts. There are three undenominational schools in the area, but there is only one Roman Catholic school and church. There is a considerable and well scattered Catholic population.

There are no houses of entertainment in any of the districts, the favourite place of entertainment common to all districts, with the exception of Akroydon, being a music hall situated at the farther end of the bridge, and while there are considerable shopping facilities in all districts, there is the usual week-end shopping in the town proper. It may therefore be taken that the adult population in those districts only intermingle freely in the factories and in places of entertainment, and it will thus be seen that there was opportunity for analysing the supposed factors in the spread of the epidemic.

During the epidemic five classes of patient came under observation, namely:

1. Insurance patients; mainly industrial workers.
2. Private patients; mainly dependants of insurance patients.
3. Insurance patients of service doctors.
4. Private patients of service doctors.
5. Poor Law patients.

The main object of investigation during the epidemic is not given in this paper; but because those investigations meant following the subsequent history of patients affected I abstained from including the patients of service doctors, as I did not know how soon I would be able to relinquish their care. Similarly of the Poor Law patients, a considerable number were patients of colleagues who had suggested their removal to the Poor Law hospital, and they were only seen formally by me to certify their fitness for removal.

The statistics, therefore, are confined to my own practice. It has to be noticed that five colleagues, whose practices extend into this neighbourhood, had been called up for military service, and with an individual panel of well over 2,000, increased by about 40 per cent., it may be taken that a fairly intimate knowledge of the epidemic in this neighbourhood was gained.

There have been three separate periods of the epidemic. The first occurred in July, 1918; the second reached its maximum of infection about November, 1918; and the third its maximum about the middle of March, 1919.

The statistics given in this paper refer to the two later periods, for unfortunately, being an early victim of the

July epidemic, note-taking was interrupted, and at that time, assistance being unattainable, work was cut down to a minimum.

It was, however, noted that:

1. Individuals affected were chiefly of the insurance class, and infection seemed to be associated with the workshops.
2. The majority were able to attend at the surgery.
3. The wives and children were not affected to any extent, or, if so, it was so slight that they did not consider it worth while to call in a medical man.
4. Illness led to very short incapacity.
5. There were no deaths.

During the second and third waves 768 patients were seen; of these, 555 were private and 213 were insurance patients. Of the private patients, 504 were visited in their homes and 51 attended at the surgery. Of the insurance patients, 115 were visited and 98 seen at the surgery.

The total number of deaths which could in any way be attributed to influenza was 19; of these, 9 were amongst the private patients and 10 amongst the insurance.

Of 223 housewives visited, 2 died. There were no deaths amongst either private or insurance patients who were first seen by me in the consulting-room. There was therefore a death rate of approximately 1.75 per cent. amongst the private patients visited, and approximately 8.5 per cent. amongst the insurance patients. It is to be noted that the death-rate amongst housewives was less than 1 per cent.

Among the insurance patients, 3 were removed to the Poor Law hospital, and among the private patients 9, but I am without any exact data with regard to the ultimate course of these cases.

While possessing figures of the total number of cases diagnosed as suffering from lobar and lobular pneumonia, they are not given in this paper. Any practitioner knows there is nothing more difficult than to diagnose with absolute certainty the presence, or absence, of pneumonic consolidation in many of the cases of influenza. We are all aware of the practitioner who, when a patient complains of a pain in the side, safeguards himself from any eventuality by an easy diagnosis of pneumonia—one practitioner, commenting on the large number of

cases of bronchopneumonia, informed me they could be distinguished from lobar pneumonia by the absence of dullness—and while an actual death rate can be taken as a criterion of the gravity of an epidemic, I do not see that there is anything to be gained by supplying figures which might be regarded as very debatable.

As the total number of cases seen was less than one in ten of the population, it is not suggested that from these figures any idea can be formed of the total number of people affected in the area. I was made aware of a large number of cases by people informing me that influenza

CHART 1.—Wind force to Beaufort scale.

CHART 2.—Private patients visited.

CHART 3.—Insurance patients visited.

was present in the house, and that if any of the occupants became worse they would call me in. On the other hand, it may be taken that those figures do bear a definite relationship to those cases in the epidemic which led to any anxiety.

The high death rate amongst the insurance patients visited as compared with private patients visited is to be noted. It might be urged that this was probably due to insurance patients failing to seek the services of a physician unless seriously ill. This suggestion would be scouted by any physician who has had experience in industrial areas, but, apart from that, the relationship of women and children able to visit my surgery to those visited in their homes was 51 to 504, but amongst the insurance patients it was 98 to 115, showing that amongst them I saw a much higher proportion of the milder cases, and therefore it is not likely that the insurance patients showed any hesitation in calling for attendance. A probable explanation of this high death-rate will be discussed later.

The "Household Wave."

When the epidemic first broke out in October infection appeared to be present in all districts, but the two exacerbations here described presented a curious phenomenon which calls for investigation, and which, for purposes of description, is described as the "household wave." On reference to the diagram this will be recognized as a slow advancing wave of infection, which commenced in Claremont district, later on passing through Range Bank, then Haley Hill and Woodside districts, almost disappearing about the new year, and again appearing with marked intensity in the Boothtown district in the early months of the year. It was in association with this "household wave" that the more serious cases occurred, both amongst the private and insurance patients (Charts 2 and 3). It was during its presence that nearly all the deaths occurred, and for this reason it appears that the phenomena underlying this household infection call for the most serious consideration.

As Boothtown was the last district to be visited by the "household wave" there was sufficient time for observations to be made before the onset of the wave, and it is worth noting what occurred in this district. Actually, the first cases with symptoms of the epidemic occurred here in early October, mainly among school children. On reference to the diagram of insurance patients it will be noticed that there was a considerable number of insurance patients affected who were able to visit at the surgery; a smaller proportion had to be visited. It will be noticed further that when the "household wave" visited Boothtown, insurance patients affected, with one exception, were so ill as to call for visitation.

Classification of Cases.

For purposes of analysis I have divided all patients affected into two classes, so far as any one neighbourhood is concerned:

- A. Sporadic cases.
- B. Cases associated with the "household wave."

Each class had its characteristics:

1. Sporadic cases occurred mainly among the wage-earning members of the household.
2. A sporadic case had little tendency to affect other members of the household, whereas in the presence of the "household wave" usually the whole house was more or less affected with the illness.
3. Sporadic cases were seldom seriously ill; one death occurred in Boothtown, October to December, and one in Claremont, January to April.
4. During the passing of the "household wave" "clumping" of the houses affected was a marked feature. In illustration of this I will give two cases; any one house in the list is within a stone's throw of any other house in the list:

(1) Cases during the October-December period:

Schoolboy	...	2, A. St.	...	October 30th.
Office boy	...	69, H. Rd.	...	" 30th.
Schoolboy	...	11, P. St.	...	" 28th.
Worker...	...	5, S. St.	...	" 28th.
Housewife	...	67, H. Rd.	...	" 28th.
Baby	...	13, P. St.	...	" 29th.

(2) Cases in February:

Housewife	...	159, C. Rd.	...	February 17th.
Housewife	...	143, C. Rd.	...	" 18th.
Housewife	...	137, C. Rd.	...	" 18th.
Housewife	...	15, I. St.	...	" 20th.
Housewife	...	124, C. Rd.	...	" 21st.
Schoolgirl	...	8, R. Pl.	...	" 22nd.
Housewife	...	28, M. St.	...	" 23rd.
Clerkess...	...	18, M. St.	...	" 24th.
Mechanic	...	26, M. St.	...	" 24th.
Railway signalman	...	1, M. St.	...	" 25th.
Mechanic	...	1, R. St.	...	" 26th.
Housewife	...	24, M. St.	...	" 26th.
Weaver...	...	4, H. St.	...	" 27th.

It will be noted that all ages and types of patient are included in these groups.

5. Among sporadic cases there appeared to be no tendency to affect houses in the vicinity.
6. So-called "complications" of the influenzal attack were much more common amongst those affected in the "household wave" than amongst the sporadic cases.

Consideration of the "Household Wave."

It has already been pointed out that the population intermingles very freely at work and places of entertainment, and there is one school to a considerable Catholic population. If the epidemic had been spread through any of these channels it seems natural to assume that all areas would have been affected at the same time, but this did not occur. The characteristic feature of the spread was the movement from one neighbourhood to another.

Atmospheric Conditions.

It will be noticed that a definite period of time elapsed between the disappearance of the wave in Haley Hill and its appearance in Boothtown. This may have been due to atmospheric conditions, and I am indebted to Mr. Green, librarian, for supplying me with the following observations in regard to the velocity of the wind and the presence of fog during the epidemic:

During the period November 11th to December 2nd there were twenty-one periods of calm (two periods of observation each day and Sundays not observed) the wind never exceeded light air and there were five days on which fog occurred. This period will be noticed to coincide with the crest of the November epidemic.

During the whole of December there were only seven periods of calm, no fog, and winds varying from light breeze to strong occurred during twenty-two periods.

From January 5th to 17th there were eight periods of calm and nine periods of light air (0 and 1 on Beaufort scale), and on the 9th there was a moderate gale (7 on Beaufort scale).

During February, when it will be again noticed the epidemic was at its maximum, there were thirteen periods of light air and twenty-three periods of calm, with three days of fog. On the 17th there was a fresh breeze.

From March 10th until the end of the month only four periods of calm were recorded and six periods of gale occurred.

From the details supplied I have prepared the diagram shown by taking the average velocities for the two periods of each day (Chart 1).

The diagram of the influenza spread is not traced in sufficiently short periods to allow accurate comparison, but the diagram seems to justify the opinion held by many, that strong winds are the best known preventive of the spread of the epidemic. And here it may be asked, If strong air currents are beneficial in breaking up the virulence of an epidemic, why should they be considered harmful as a means of breaking up the virulence in the unit of the spread, that is to say, in the home?

Very early in the epidemic it struck me as curious that generally the first member of the family affected appeared to escape with the mildest attack, and that serious illnesses usually developed among the other members of the family. I made observations of this in a large number of cases; the assertion is obviously rather difficult of proof, but to find probable confirmation of it I have analysed the cases where death occurred.

* In subsequent parts of this paper the term "secondary stage" is used in preference to "complications," and, so far as this paper is concerned, the use of this term may be accepted, I think, without reasons being given for its use.

Increase of Severity from First Case in a House : Number of Deaths.

No. of Case.	Relation-ship to Infection in House.	Remarks.	No. of Case.	Relation-ship to Infection in House.	Remarks.
1 ...	1st	Lived alone.	12 ...	1st	Sporadic.
2 ...	4th	Six in one bed-room.	13 ...	1st	
3 ...	2nd	Brothers; six inmates residing in one roomed cottage.	14 ...	2nd	
4 ...	3rd		15 ...	2nd	
5 ...	3rd		16 ...	2nd	
6 ...	2nd		17 ...	1st	Nursed sister who was said to have been seriously ill with influenza and pneumonia.
7 ...	3rd				
8 ...	2nd				
9 ...	2nd				
10 ...	1st	Sporadic.	18 ...	2nd	
11 ...	2nd		19 ...	1st	

During the winter, lines of dealing with the epidemic were sought, and as the amount of knowledge increased, added to the experience gained during the summer epidemic, more or less definite lines were adopted, and as the lines disagree in many ways with the current teaching in regard to this, the thought which prompted them may be given.

It scarcely seems credible that the human organism is devoid of any protective mechanism against the attacks of an air-borne virus inimical to that organism, short of development of an immunity acquired through the presence of the virus or its products in the tissues or circulating fluids of the body. If such protective mechanism exists it is inherited, and it is natural to assume that that protective mechanism will give the best reaction in an environment in which the mechanism has been evolved, and short of that, in the normal environment of the individual. The natural environment of man is inherited, his normal is usually acquired. Reversion to inherited is beneficial to the organism; thus, the acquired environment of a large number of the men called up for military service was the factory and the workshop, and the result of placing them in the inherited environment of the open-air life of military service need not be laboured here.

Infection in a normal environment should therefore be preferable to infection in an abnormal, both by reason of easier recognition of the virus, and if the normal environment can be maintained, by better reaction of the protective mechanism. The natural environment of man is the open-air life; the lesser modification of this is the factory, school, or places of entertainment, and the larger is the average industrial home. It was the realization of this fact which made me refrain, contrary to the advice of the Royal College of Physicians, from advising insurance patients who consulted me at the surgery to confine themselves too much to bed. In this connexion I may mention the case of a demobilized soldier. I had been in attendance at a house, and I noticed the man sitting by the fire, looking very ill; he had a temperature of 103°, and I advised him to go to bed. He replied, "Aw mak nowt o' bed; aw'll cure mesen." The next day when I called he was out, and two days later when I called he was shaving himself; he looked well, and was grinning all over his face. It appeared that on the first day he had gone for a walk of about five miles; on the second day he awoke "feeling stiff all over" and "no better," so he went for a walk of about eight miles, and finished up by going into a public-house and having "fourteen gins." "Aw kept on callin' and they kept on bringin'; aw got drunk, but aw'm alreight nah." He gave credit to the combination of remedies.

Whether the patient stayed away from work or not was left very much to his own feelings, and no patient who consulted me at the surgery ever passed into the "secondary stage." Those cases were sporadic, presumably received infection in normal environment, and reaction was good.

In the case of the "household wave," the first affected usually appeared to receive a more serious affection than the sporadic, but not so serious as those subsequently affected in the same house. The illustration of this is

to be found in the high visiting and low consulting lists in relationship to the "household wave." Investigations were made, mainly in the hope of finding some means of breaking the malignancy of the "household wave," but much remains obscure.

The reason why subsequent cases were more serious than the first in any one home is probably due to three factors:

- That density of infection has probably a definite relation to intensity of attacks.
- That the usual household precautions in the presence of illness leads to greater abnormality of the environment, and thus lowers the sensitiveness of the protective mechanism of other inmates.
- That those same precautions probably prevented any attenuation of the virulence of the micro-organism when passing from host to host.

But why the first case in the household was, on the average, more serious than the sporadic, and why the "clumping" should occur, is difficult to understand. Casual observation might lead one to suppose that the spread was due to actual contagion from one house to another. At first I regarded it simply as due to "neighbourliness," but later on became convinced that this could at most only be a partial explanation of the spread. In many of the households affected in a "clump," a suggestion of being in any of the other affected houses was absolutely denied. It will further be noticed that within one particular "clump" two or three houses commenced on the same date, and further, owing to the general fear of the epidemic, spread by newspaper reports and other methods, if the epidemic was known to be present in a house, the house was usually shunned by neighbours. In many cases the houses were not in direct contact but separated by the breadth of the street or by garden walls. It was easy to be supplied with a probable source of infection, as easy as for the average parent to trace the ailments of childhood to vaccination, for during the whole winter in populous areas there must have been very few who were not time and again in contact with infective persons; but why people within small radii of one another, of all ages, of different occupations, not coming in actual contact with one another, should develop synchronous attacks, still remains a mystery to me.

Ventilation of Sick-room.

With the lull at the New Year opportunity was afforded for a preliminary review of observations, and from that time onward, when called to visit, the first thing considered was the condition of the atmosphere. The people were advised to open the windows, remove screens, and if possible a through draught was sought after, by opening front and back windows and intermediate doors. This ensured that at least during one period of the day the atmosphere of the room was changed. It was impressed upon the occupants that the need for open windows and through draughts was as great for them as for the patient. To illustrate this two cases may be cited.

In the first, the patient lived in a one-roomed cottage along with two children, aged 10 and 3; catarrhal symptoms were present in the child aged 10. After visiting in the forenoon, I was called to see the woman late at night and found she had developed severe bronchial symptoms. The room was hot and stuffy; there was no ventilation, owing to the fact that the window was enclosed in one frame not made to open. A rolling pin was borrowed from one of the neighbours and a pane of glass was smashed out. On the following day the air of the room was cool and comparatively fresh, both patients showed improvement, and the child aged 3 did not develop the symptoms.

In the other case a family of ten (eight adult) resided in a house with three bedrooms, the whole family sleeping within a circle of 12 ft. When first visited two were in bed and the mother was obviously infected. Serious warning was given of the danger in such a household, but fortunately, in this case I knew that any instructions given would be carried out; every window was opened and all inside doors, and remained open during the period of infection. None of the rest of the family developed symptoms. Two developed symptoms three months later; five have escaped so far.

This advice appeared to be in such direct opposition to that given in the newspapers and by the local health authorities, that it led to much discussion, and, for me, waste of time, but it was a pleasing feature that in the later stages of the epidemic people seemed more ready to appreciate the value of the open window.

As much of the prejudice appeared to be traceable to the memorandum issued by the Royal College of Physicians, and to the more or less garbled summaries issued by local authorities, presumably on the advice of the Local Government Board, one is now justified in asking if the data on which that memorandum was based can be supplied, and if the statement that "draughts are harmful" was really the subject of careful investigation, or if the College was simply lending moral support to current superstition. I scarcely think that the harm from the advice "on the first feeling of illness or rise in temperature" (how many of the population possess thermometers?) "the patient should go to his bed at once" was balanced by the subsequent advice to "call in a doctor." If home conditions were ideal no one could take exception to the advice. The rest in bed would increase the ratio between the anabolic and katabolic processes in the body and thus raise the resistance of the individual cell; but that which may be good advice to a community where a high standard of living obtains may be detrimental where the standard of living is low. To advise people, who to avoid draughts normally place pads along windowsills, screens around beds, and even stuff paper into keyholes, that they should on the first symptom of illness leave their normal environment, go home to bed, and avoid draughts, is surely advising them to court disaster. This was not the intention of those who framed the memorandum, but this was the practical result of their advice.

As there are indications that the epidemic has not entirely exhausted itself, and that, given suitable climatic conditions, there may be a recurrence during the coming winter, attention may be called to the preventive measures suggested by the health authorities. In regard to the closing of places of entertainment or restriction of the hours of continuous performances in picture houses, I was unable to find a single case where infection could be definitely traced to this source. It can be seen that the place of entertainment could have no relation to the influenzal wave in this neighbourhood. To close these places can only increase the hours of congestion in the home, and to limit the hours of continuous performances can only increase the congestion of individual performances. The ludicrous suggestion as to the wearing of masks and even goggles was fortunately not adopted, for, if there be any advantage in wearing them, that advantage would be lost in the place where the wearing of them appears to be most necessary.

Toward the end of 1918 a stock vaccine was placed at our disposal and application was made for this, but I found it was suggested for use in prophylaxis. The use implied certain moral obligations to supply the Local Government Board with certain statistical information, which obviously to me could not be given. During the evening on which I received the vaccine I spent a quarter of an hour trying to persuade a husband to be inoculated, but he finally declined. He did not develop the symptoms. Theoretically, or under military discipline, vaccines may be of great value, but the time is not yet when we can line up masses of the civilian population and tell them to roll up their sleeves.

The value of the notification of pneumonia has already been commented upon.

Any medical man can realize and sympathize with the embarrassment of a department in the midst of a popular clamour to "do something," but it is to be hoped that that will not overrule the detached judgement. Much could be done, however, by the compulsory opening up of fever hospitals for the reception of cases where there is overcrowding in a house or where the early symptoms of the "secondary stage" are present. Cases removed to the Poor Law hospital appeared to do well; two insurance patients with lobar pneumonia and acute mania, which I regarded as hopeless when removed, made good recovery. This, I think, is associated with the phenomenon of the higher mortality among insurance patients; the environment of the house is more abnormal to the worker than to the housewife, whose mortality was remarkably low. There is, however, a certain prejudice to all Poor Law hospitals which will not be easily removed. Two of my cases who died informed me that while they would be willing to go to the fever hospital they would rather die than go to the "union." In the case of one—a pregnant woman who

was confined before her death—I felt sympathy for her point of view.

Apart from this I cannot suggest any steps which central authorities could take to break up the epidemic. It is difficult to see how the house-to-house spread can be prevented. Houses and habits cannot be altered by panic legislation in the midst of an epidemic. If people would follow their usual routine and realize the benefit of strong air currents there would be little fear of dangerous infections.

Much has been written about the relation of the general health of the community to the epidemic. There may be some relation, but so far as the suggestion that war conditions led to an impairment of the general health of the community, I am without evidence. During the two months preceding the epidemic there was a small visiting list as compared with previous years; there was the usual routine of the consulting insurance patient, but even amongst them there was nothing to indicate any marked impairment of health.

In regard to the after-effects of the epidemic, while it may still be premature to form an opinion, during the last three months I have only seen one of the observed cases with an illness which appears to be directly traceable to the infection, and during this summer there has been exceptionally little illness. In this fact may be found the true explanation for the small practice of the demobilized officer.

I am fully aware how little importance will be attached to the views here expressed, by those who frame regulations, but with the experience gained in over 1,000 cases, and with many hours spent in analysing the observations made, I cannot help but express the view that if public health authorities cannot be a help to the general practitioner, they should at least refrain from being a hindrance.

THE SCOPE OF CERTAIN GASEOUS DISINFECTANTS IN THE PROPHYLAXIS OF INFLUENZA.

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Since the publication of my note on the epidemiology of influenza among gas workers (BRITISH MEDICAL JOURNAL, March 1st, 1919) evidence has been accumulating that people working in an atmosphere containing certain gases obtain a marked degree of immunity during outbreaks of influenza. Shufflebotham (BRITISH MEDICAL JOURNAL, April 19th, 1919, p. 478) has brought forward an interesting series of figures pointing in the same direction. In the present paper my object is to describe some experiments undertaken with a view to determining the value of SO₂ and NO₂ respectively for the present purpose, and in doing so I may mention that latterly, through the kindly offices of the Medical Research Committee, I have been able to co-operate with Dr. Benjamin Moore, F.R.S., and Mr. Webster of their staff, whose report may be expected at an early date.

The problem for investigation may be summarized in two questions:

1. Is there any epidemiological evidence to show that workers in fumes are less attacked by influenza than others?

From all statistics at present at our disposal we venture to answer this proposition in the affirmative.

2. Is there any evidence to show that the fumes emanating from these manufactures have any influence on the vitality of bacteria in the post-nasal secretion of persons inhaling them?

It goes without saying that if a practical measure for preventing the spread of influenza by means of a disinfectant gas is to be elaborated, the concentration of this gas must be such that while exerting the requisite action on the secretion of the upper respiratory passages of those inhaling it, no untoward effect is produced. It may be stated at once that throughout the following experiments with SO₂ and NO₂ gases the concentration of these gases in the air of the room was so small as to be comfortably outside the limits of their toxic action.