Phthisis Pulmonalis
In the Insane

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Phthisis Pulmonalis is, and has for long been regarded as one of the most dreaded scourages of the human race. Its prophylactic and curative treatment has ever tested the resources of the leading men in our profession, and more so since its strong hereditary tendencies and the possibility of prevention were fully recognised. The differences in the character of the deposits in the lungs and other organs, together with the commencement, course and termination of all the varieties of this disease, have for years received the closest attention while on the subject of treatment and cure a vast amount of literature has accumulated. New modes of treatment are frequently proposed, perhaps more frequently proposed for this disease than for any other, and their efficacy is for a time extolled on all sides, till experience, that great teacher, assigns to each method its proper rank in the roll of merit. Sufferers from this disease hail with fervent hope every new remedy or form of treatment, and naturally so, for this disease with its remissions and natural efforts at cure, is one in which hopes of recovery in
the victim are markedly present, in many instances almost to the last.

Many Physicians have noted the frequency of deaths from Consumption among young married men, who in early life had attacks of Pthisis, from which they had so all appearance recovered. I have seen in the Post Mortem room, and read in our Pathological Register of cases, where in the apex of the lung there was an old cicatrix, and in the neighbourhood a disintegrating Torned of what might be termed recent date. This reminds one of the old Dicton of Sir Thomas Watson, at one time universally accepted, that once Tuberculosis was definitely established care was "beyond our power." This inevitable character of Pthisis is now regarded in a modified light. Kurusyer Lectures on Consumption P 65 states "many a patient gets well, who would formerly have been assumed to be the victim of Tubercular and therefore incurable disease.

Dr. C. I. Williams P 324 one of our leading authorities on Consumption, states that "a cure was effected in 4.6% of cases, great improvement in 38% of, the disease was stationary in 13.14% of, but in 34.5% of, there was more or less increase." In the British Medical Journal Dec 21st 1889, Dr. Harris refers to researches on the
curability of Phthisis. After carefully excluding debatable cases, he found that 33.84 p.c. (at least) of the Autopsies at Manchester Infirmary, showed evidence of a healed or obsolete Phthisis. In the same paper he states that Cruvelhier holds that it is unusual to make a Post Mortem, on an old person especially "without finding in the apices of the lungs, changes which indicate the healing of previous Tuberculosis." From the same source I find that 27 p.c. of Bollinger's cases indicated the curability of Phthisis Handacker 26 p.c., Massini 39 p.c. - in this last, deaths due to Phthisis were not included. But it must be borne in mind as Dr. Harris pertinently remarks, we are not able to draw absolutely definite conclusions from the above inasmuch as "we are not yet all agreed as to what is to be called healed Phthisis, and what is not."

Frequency as a cause of death. I would recall to the mind of my reader the prominence with which Phthisis figures as a cause of death, in those portions of the globe, where deaths are recorded with tolerable accuracy.

Tables I and II are tabulated results of the frequency of Phthisis as a cause of death, determined by statistical authorities.
Lombard's method (Table I) of comparing the number of deaths from Consumption, with each 1000 of the total deaths is unsatisfactory, and much more, the ratio of Pithisical deaths will be lower, the higher the general death rate is. Or as Dr. Ransome remarks "a place with double the rate of mortality from Pithisis as compared with another with the same population, may appear in the same grade with it, if only its total death rate is also twice as great as that of the latter." (Nebro Lectures p. 33).

I do not propose to enter into the question whether Pithisis Pulmonalis as a certified cause of a death is more prevalent amongst the insane than amongst the general population, there are so many difficulties to be overcome at the outset that in a paper of this length, it would appear impossible to arrive at a really satisfactory and logical conclusion, further I am not able to acquire the particulars necessary for the investigation of this point. Dr. Clouston in the above mentioned paper concluded that Pithisis Pulmonalis as "an assigned cause of death" was "much more frequent" among the insane than among the sane.
From Lombard's tables, and a careful study of his map it is evident that Pthisis is ubiquitous, climate was but a secondary and small influence on the prevalence of this disease, whatever be the latitude of the country under consideration, the death rate from Pthisis is usually greater in the larger centres of population, and differs but little from the Pthisical death rate of any town with a corresponding population in another latitude. The only part of Lombard's map which are free from the Pthisical shading are the Deserts, Arctic and Antarctic regions and the high mountain ranges, these are the very places where human beings are fewest in number, and where probably the cause of death are not kept with great accuracy. Hirsch aptly remarks "An altered mode of life, amongst whole populations, has had a most decided influence upon the rise and progress of consumption whilst the climate in which they live remains the same as before." (Hirsch Vol II p. 89)

This is illustrated by the great fact that Pthisis is now progressing in many places in Australia, New Zealand and the Diaries of America where once it was unknown. This disease is of such terrible importance
to mankind that all inquiries made in a reasonable way from carefully noted and reliable facts are not only warranted, but the conclusions if based on sufficient grounds may be of service by affording greater accuracy of result to the profession.

As far as I can ascertain, Phthisis Pulmonalis in the insane is a subject to which but little attention has been given since the appearance of Dr. Clouston's paper in 1863. I have therefore ventured to select it as the subject of this Thesis.

I would now indicate the direction of the inquiries I have been engaged in, the general questions I set myself to investigate, the mode I adopted, and the results I felt justified in arriving at.

Sketch of Investigation

1. Is Phthisis Pulmonalis as common a cause of death in Asylums as it used to be?
2. In what forms of mental disease is Phthisis Pulmonalis most common as a cause of death?
3. How if at all are the symptoms and the course of the insanity modified by Phthisis and what influence, if any, does the special form of insanity exercise on the Phthisis?
4. Is Phthisis Pulmonalis common amongst General Paralytics? What effect, if any,
Has its presence on the symptoms of General Paralysis?

I. Is Phthisis Pulmonalis as common a cause of death in Asylums as it used to be?

Class A. In investigating this question I would briefly state my method of procedure. I summarised and tabulated all the information I was able to obtain from the Scotch Lunacy Reports, regarding the deaths from Phthisis, the total number of deaths, and the average number resident in the Royal and District Asylums, for a period of 18 years—1872 to 1889. These 18 years I divided into three periods of 6 years each. Vide Table 3. To obtain the particulars for this Table it was necessary to go over each report from 1872–89, mark the several requirements in each year and summarise into periods of 6 years. I fear that the periods compared are too short and that the source of the particulars may not always be thoroughly reliable, but the conclusions whatever they be, may at least indicat in which direction the truth lies, labor for the search of truth is never lost.
Class B. I summarised and tabulated similar particulars (Table 14) as far as I was able to obtain them from the Reports of seven English Asylums, chosen at haphazard and without previous knowledge, of either the Pathological or ordinary death rate.

I merely ascertained that they received all the insane from their own districts so their returns were likely to be more indicative of truth than the Asylums which merely received either an entirely Rural or Urban population. They were Cornwall, Glamorgan, Hants, Leicester and Rutland, "Three Counties" (Bedford, Hertford and Huntingdon) and Stafford. Owing to the absence in the English Commissioners Reports of the statistical Table of deaths in the form drawn up and recommended by the Psychological Association my material for investigation was very much limited here. Unfortunately I was not able to collect the statistics required, from the afore-mentioned Asylums for a longer period than 10 years. Further these 10 years do not altogether correspond, six are from 1880-89, my purpose being to bring the statistics as well up to date as possible. In the three Counties, and Cornwall the periods are from 1879-1888 the differences.
is only of one year so I have ventured in
Table 4 to discard this discrepancy, and
heat them as though they were all in
the same decade. The few years I
divided into two periods of 5 years.

C. Thirdly, in the further investigation of
this question, I took our own Asylum at
Carlisle (Table 5) and prosecuted the
several points in a manner precisely
similar to the mode adopted for the
Scottish and seven English Asylums.

My reasons for not classifying our own
Asylum in Section A or B were:

1. Having access to all our case books I
was able to closely and more accurately
examine for a period of 20 years the
several points under investigation. When
I first wrote this paper I was not able
to make the required statistics for the
last decade complete, I have since obtained
the particulars and have added in as
suitable the results. All the following
investigations refer only to the 117 cases
which occurred from 1863 to 1888.

2. Inasmuch as at Post Mortem is made
on every death occurring in the Asylum, the
facts are more exact, and naturally the
conclusions drawn will be more reliable.
To appreciate the exact importance of the
Figures in Tables 3, 4 and 5 I found it would be necessary to draw up a table of what may be termed percentages. Having obtained the numerical particulars I worked out and tabulated the percentages (Classes A, B, C) and summarised them in Tables 4, 7, 8. Let us now turn our attention to some points contained in these Tables (3-8). The decrease of Phthisis as a cause of death is very clearly seen in the Scotch Asylums (Table 4). In the years 1872-77 16. p.c. of the total deaths were due to Phthisis, in the second period there was a diminution of 1 p.c., in the third, further decrease of 2 p.c. It will be seen (Table 6) that this reduction in the percentage of the Phthisis deaths was markedly due to a diminution amongst the women. In the men there is a difference of but 1 p.c. between the 1st and 3rd period. In the women there is a difference of 14 p.c. Scotch Asylums from their reports therefore shew a marked diminution of the Phthisical deaths during the 18 years. Table 7 shews that in the English Asylums the death rate from consumption as compared with the total death rate is higher in the second period than in the first. The increase being
one might say entirely due to a higher phthisical death rate in the women. The male phthisical death rate for the two periods are 14.0 and 14.5 the female being 17.3 and 20.6.

In Table 9 I have given the minute of the English Asylums, it will be seen in two there is a diminution of the phthisical death rate, one Glamorgan is to all extent stationary, Stafford, Hunts, Leicester and Rutland and Northumberland show an increase. One cannot help noticing the marked increase of the phthisical death rate in Northumberland. In reference to this increase I can't do better than quote Dr. W. Bowles report for the year 1885. "Although this increased phthisical death may have arisen from a continuous concurrence of events it was nevertheless necessary that all circumstances likely to produce this disease should be enquired into and removed." The ventilation appeared to be most likely to be found at fault and so it proved. The gauge covering the opening into the ventilators was too fine in the mesh, was thus easily choked with dust, and thus effectually prevented the escape of foul air. Some of the shafts opening directly outside, had been taken
Possession of by birds and thus effectually prevented the escape of foul air. In his report for 1886 he states: "I directed attention to the excessive number of deaths from Consumption, an excess so marked as to call for immediate inquiry. Circumstances seemed to indicate that the ventilator was at fault, and so it was, ... it is now believed to be in thoroughly good order. ... The deaths from Consumption have markedly decreased." This is strong evidence to prove that bad ventilation is an all-powerful factor in the production of Asylum Phthisis.

In Garlands Asylum Table 8, the Phthisiacal death rate at first shows a decrease of 2 p.c., from 1863-72 it was 13.3 p.c., from 1873-82 it was 11.3 p.c.

The last ten years show an increase of 2 p.c. on the preceding decade. I may add here that in 1886 there were 10 deaths from Phthisis, of these 5 were 50 years of age or above, and the apparent increase of the consumptive death rate for this year as I believe misleading, it was due to the marked diminution of our death rate which was 7.4 p.c. rather than to an actual increase in the consumptive death rate.

In 1892 there were 7 deaths from Phthisis.
amongst the females and no deaths in the males. There are several reasons which might be offered to explain this increase in the Pthisical death rate during the last decade, the reason may possibly be found in a series of consecutive cold winters as 192 and 191 were or as before stated, an apparent increase of Pthisical death rate being really due to a marked diminution of the death rate, or again this increase does not necessarily mean an increase in the Asylum developed Pthisis, for by chance there may have been an increased number Pthisical on admission. Unfortunately I have not the particulars which would enable me to investigate this. These points must also be borne in mind in accepting the testimony of the results in Table 9.

We find here Table 8 also that the p.c. of male deaths from Pthisis remains fairly constant whilst in the women there is a marked diminution, shewing between the 1st and second periods a difference of 5 p.c. and from Table 8 a difference of 2 p.c. between the 1st and 3rd.

To summarise shortly,

1. Pthisis as an assigned cause of death in Asylums (shown by Class A and C) is not so common as it used to be.
will be seen further on, that this conclusion is also upheld by the statistics from the County Asylum, Chester.

2. The Pithisical death rate of the women varies considerably, it is a more powerful factor in the increase or diminution of the total Pithisical death rate than the Pithisical death rate of the men.

Having arrived at this main conclusion (1) there are two points which are of interest. Was the Pithisical Asylum developed or did it exist on admission? This question I am not able to answer as fully as I would wish, for it would necessitate a perusal of the history of each case that died of Pithisis in Class A and B. I know from our own cases, and am therefore inclined to believe that in Class A and B, in a considerable number of the deaths from Pithisis, the Pithisis existed on admission, this would distinctly show that the p.c. of deaths from Pithisis in Asylums does not at all indicate the proportion of Asylum developed Pithisis.

At a future date I hope to enter more particularly into the consideration, whether Asylum developed Pithisis is less frequent as a cause of death than it used to be. The conclusion that Pithisis in Asylums
is diminishing seems natural, for on general grounds it might fairly be expected that the advances in hygienic knowledge tend to a reduction of the Phtisical death rate. The Asylums of the present day are palaces compared with what they used to be. Now the greatest attention is paid to ventilation and overcrowding is always avoided when possible. Our Central's are of larger size. The strictest care is directed to cleanliness, and all sewer gases are excluded as far as possible by a proper system of drainage, while the diet, exercise and recreation are regulated with a view to the Patients health. In the early history of Asylums the term Madhouse was synonymous with the lowest form of Pruson life, to be kept in an Asylum meant a living death, then is it to be wondered at, that none but the most urgent cases were sent for treatment to Asylums. In our day with the vastly improved hygienic and social treatment of the insane, the public have learned the value of these Institutions, and are more willing to place their mentally afflicted relations and friends under proper control and supervision. Further it must be remembered that in
the early history of Asylums not only the insane as a whole but the insane with developed Phthisis, or weakened health with Phthisis were not so commonly admitted as they are now. If this supposition is true, then even a very slight diminution in the Phthisical death rate in an Asylum may mean more than is at first apparent and on this I would venture to lay considerable stress.

2. In what form of Mental Disease is Phthisis Pulmonalis most common as a cause of death?

My first step in the investigation of this question was to obtain all the deaths from Phthisis for a period of 26 years (1863-88) at Garlands. These I got from our Registers, they numbered 117. I then carefully read over the history of each individual case, and the account of the Post Mortem. Many of these cases were certified by the Medical Superintendent, as suffering from Mania or Manic-depressive disease might be, in the several diagnoses of these there could be no doubt, but in the earlier cases I had to be guided by the history of the patients.
and concluded for myself what form of mental disease they labored under.
My decision in the classification of the Patients was guided by the most prominent mental symptoms. The results are summarised in Table 10.

From this it is evident that Mania in some one of its grades, is the commonest mental disease in which Phthisis is the cause of death. It is necessary to add that in the Maniacal cases, though Mania was the first (as far as could be ascertained) and most prevalent symptom throughout they all suffered in some period of their history from Melancholia either to a greater or lesser degree, many of them Maniacal at first became Melancholic previous to passing into the stage of Dementia.

Those suffering from Melancholia, in the same way were not Melancholic throughout, but in them I noted that the excitement was more of the type, of what Dr. Glouston terms "Excited Melancholia" (Morton), rather than actual Mania. Hence I might say that the tendencies of the Maniacal cases toward Melancholia were more marked than the tendencies of the Melancholic cases toward Mania.

This conclusion does not quite tally
with Dr. Glouston's result when he states that Tuberculosis is now common amongst the Melancholics (Tuberculosis and Insanity P.30). But as the methods of classification are not similar too much stress must not be laid on this difference. Of the Tubercular cases that had delusions 45% of them had delusions of persecution which really goes hand in hand with suspicion.

3. In the consideration of this question to take the 117 cases, in which Pneumonia Pulmonalis was the cause of death and ascertainment

1. The cause of the insanity as far as known
2. The condition of their lungs on admission
3. The history of the Insanity generally, and its tendency to Dementia
4. Their length of residence in the Asylum
5. Their delusions and suicidal tendencies
6. The age at death in the different forms of insanity
7. A summary of the Post Mortem appearances

1. The Cause

Table 11 shows that in the Tubercular insane, Hereditary Predisposition, as in the ordinary insane, is one of the strongest causes (evident that 26.7% of the 117 cases had a family history of insanity, either direct or collateral, further of the 79 cases in which a cause was
ascertainable, no less than 36.7 p.c. of them were due to Hereditary Influences. Of these 29 cases, 15 were men and 14 women, there would seem to be no real difference in hereditary influences on the sexes. Overwork comes as the next most important cause, it was in nearly every case combined with poor living. Owing to the difficulties in asylums of obtaining anything like a precise family history I was unable to ascertain definitely whether the hereditary influence of Phthisis was greater in the insane than the sane.

2. Lungs on admission

As seen from Table 12, 14.5 p.c. of the cases were Phthisical on admission (therefore not Asylum developed), 23.9 were suspected making a total of 38.4 p.c. of the Tubercular insane in which the Phthisis was developed previous to, or suspected on admission. Let us now consider what influence this will have on altering the p.c. of the Phthisical death rate, contrasted with the total death rate. During 26 years there were 117 deaths from consumption and 933 deaths from all causes, this giving a Tubercular death rate of 12.5 p.c. of what at first would seem Asylum developed Phthisis. But of these
117 cases, 445 were known or suspected to exist on entry, leaving a total of 72, and thus altering the Tubercular death rate to 7.7 per cent for the period of 26 years. This percentage I am inclined to think represents a really higher ratio than is correct, for in the early history of Asylums no record was kept of the precise physical state of a patient on admission. Considering the difficulties which have to be overcome in the physical examination of insane patients I think the above results speak highly for the skill and attention of the past and present Medical Staff of the Asylum.

3. Sketch of the insanity and its tendency to Dementia.

Under this heading I purpose to give a short sketch of

1. The commencement and course of the insanity
2. " " " " " " " " " " " " " " Pathosis

1. In many of the 117 cases I was unable to obtain the preliminary features of the insanity. Some authors state that a stage of Melancholia is the most common precursor to Tubercular insanity.

In the most recent cases, where there is a record of the Primary and Secondary mental symptoms, I have inclined to believe that in a distinct proportion the mental symptoms were of a Maniacal
type. The commencement and history of the insanity in those cases varied greatly.

In some there was an initial stage of Acute Mania. In others the commencement was insidious, the patient showing a general alteration in character and disposition—suspicion of all even his friends and a strange indifference to amusements and pursuits formerly enjoyed. The mental state varies much; at one period there is marked excitement, the patient is dirty, untidy, and abusive, refuses (often without reason) to take his meals, or on the other hand he may fancy his food is poisoned and "burns holes in his stomach" this last caused possibly by a convolutional misinterpretation of the symptoms of indigestion. The persistent refusal of food in the insane is I think closely connected with the Intercellular diathesis, it is met with both in the Maniacal and Melancholic cases, it may occur at the commencement, it may ever be the first observable symptom, or it may not appear till late in the course. In the patients who were long in residence the absolute refusal of food was rarely constant, for some weeks or even months, nourishment will not be taken, but
gradually the resistance becomes less and he eventually reaches his normal state. This may recur more than once in the same case. It can often be associated with an increased activity of the Delirium.

I have been strongly impressed by this and am inclined to hold the opinion, that if refusal of food without some obvious cause should in every case make us strongly suspect the presence of Pithisis, even though it may not be detected by Physical signs.

The stage of excitement may pass off, the patient becomes quieter, fairly rational in his behaviour, and may even appear to have recovered from his insanity, but this stage is often an immediate precursor to an acute attack of Melancholia. He now sits for hours at a time in one place, he presents an absolute indifference to his surroundings, eventually a dulness in his habits, his actions appear mechanical, and his reasoning powers seem altogether dead. The stage of Absolute Dementia is reached by few, as a termination it is more common among the Melancholics than the Maniacal. The reverse of this holds good in ordinary insanity. Dr. Cleston (1874) says "out of 100 cases of Dementia taken
at random, whose histories I know, only 20 followed Melancholia.

2. In the Maniacal state, the physical symptoms of Phthisis are not so well marked, they may even to all appearance totally disappear, or be but represented by a dry cough. In the Melancholia and quieter periods the presence of the Phthisis is, on the whole, more evident. Cough and expectoration may be entirely absent in both mental states. The symptoms of the Phthisis are, at times so slight, that the discovery of its presence may be an accident. A total absence of cough and expectoration, the patient seeming in fairly good health, nothing is expected; but if suddenly haemoptysis occurs, and examination is made of the lungs, and the patient is found to be in an advanced stage of Consumption.

Haemoptysis I noticed to be the first appreciable symptom in many cases, it occurred more frequently amongst the Maniacal or during periods of excitement. The marked restlessness, the energetic movements of the patient, or a struggle with an attendant are causes which help to explain the predominance of haemoptysis in the Maniacal. Here, as in the sane,
I noticed that Haemoptysis was most usually observed, in the two extreme periods of Phthisis, at the beginning, and at the last stages when the lungs are riddled withomite. Williams states that it is met with in about $\frac{3}{4}$ of all Phthisical cases, amongst the insane records, exist in only about $\frac{1}{4}$ of the cases. In some patients there is an entire absence of all physical signs of Phthisis, a slight evening rise of temperature, a steady diminution in weight, and then a general deterioration in the bodily health, till death occurs. The Post Mortem Table alone reveals the fact that an extensive Phthisis was the cause of death. But this apparent absence of symptoms may be due to a want of observation, but may be caused by the difficulties which are met with in the examination of a certain class in the insane.

IV Length of residence in the Asylum

I prosecuted my inquiries on this point in three directions

A. How long did the Phthisical on admission live?
B. " " " suspected Phthisical " "
C. " " " apparently healthy " "
Table XIII

Of the cases Phtisisal on admission nearly 12 died before a years residence, of the suspected 10ths. In those whose lungs were apparently healthy on admission we find that 36 or exactly half, died within 4 years of residence. The results of Table XIII tally with the results arrived at by D. Clouston (Phtisis and Insanity P. 31) "One half of the cases of Tuberculosis die within three years of the commencement of the insanity." The commencement of the insanity being contemporaneous with or slightly previous to admission into the Asylum. Of these 36 cases, 19 were Maniacal and 12 Melancholic, the others were dementes or Infeibles. I then examined these 72 apparently healthy patients and ascertained in each case, how long, after the symptoms of Phtisis appeared, did the patient live. My results are summarised in Table XIV. From Table XIV it would at first seem apparent that over 50 p. c. of the insane, die within a year of the initial symptoms of Phtisis. But I must add that in many of the cases, the Post Mortem appearances indicated that the disease had probably existed for a longer period than had been suspected. Latent Phtisis is far more common among the
V. Delusions and Suicides

From Table XV it will be seen that delusions in the Tubercular insane are on the whole more common than in the Non-Tubercular insane. Out of 120 cases chosen haphazard from the general insane I found that nearly 50 per cent. of them had delusions. In some form 74 per cent. of the delusions in Tuberculosis were delusions of persecution, their nature varied greatly, in some there was but a vague complaint of being watched, worked on by electricity, or followed by people who were intent on discovering their private affairs, others stubbornly refused food, believing that it was intentionally poisoned.

Delusions of persecution are stated by some authors to be more common amongst the Melancholics. An analysis of these 29 cases showed that 14 suffered from Mania and 13 from Melancholia, 2 were dementias. From the small data obtainable, no reliable conclusion can be drawn. But it was a distinctly noticeable feature, that the delusions in the Melancholics were more marked, and generally formed a very prominent feature in the history of the case. The delusions in the Maniacal
were quite secondary to the intensity of the Mania, in nature they seemed more fleeting. Further, I noted that in the cases of Tubercular Melancholies with delusions of persecution, the depression was more intense than in the Tubercular Melancholies who are free from delusions. It is an interesting question whether the increase in their mental depression was a result of the delusion or not. It is scarcely advisable to discuss it here, tempting though the question be.

**Fleeting Delusions** Their nature and prominence varied much, a matching of the identity of those around was perhaps the commonest form met with.

**Visceral Delusions** Of the nine cases, 5 were of the Maniacal type and 4 Melancholic. 4 of the delusions were of a sexual nature.

**Suicides Table XVI**

From the 117 cases examined, 26.4 either attempted or threatened suicide. Of these attempted suicides 9 were Melancholic, and 7 Maniacal. The data are small, but they would point to the fact that the suicidal tendency in the Tubercular insane is, as in the general insane, more prevalent amongst the Melancholies. The means used for self-destruction varied greatly and were
influenced by the patient's surroundings, and his calling in life.

Age at death. Table XVII

Table XVII bears out the fact, previously stated i.e. the closer the form of insanity is to Dementia, the longer the Tubercular patient will live, the advance of the Paresis seems to be retarded in the apathetic state of mind, whereas in the Maniacal it is accelerated.

There are however other factors to be borne in mind, the melancholic patient is more amenable to treatment, if warmly clad and properly cared for, there are not those acute exacerbations of Paresis which take place in the Maniacal. These exacerbations I believe are greatly due to a reckless and often an unpreventable exposure of person, which takes place not only during the day, but also throughout the night. The average age at death in the men and women, were for all purposes similar, in the former it was 40.41 in the latter 40.9.

It is at first difficult to understand why life should be more prolonged in Se. Mania, than it is in Se. Dementia. I would suggest as an explanation, the fact that in the latter (as shown by the
history) the fits as a whole were more frequent, and more violent than in the Epileptic Maniacs. These fits had existed since early childhood in all the cases, there were therefore present in the Ep Demented, frequent and violent fits, plus an extensive Phthisis, powerful factors in the causation of an early death. In the former (Ep Maniacs) the fits were fewer and less marked. The Epilepsy did not produce sufficient mental aberration for Asylum treatment, till adult age was reached.

A Summary of the Post Mortem results

The analysis of the Post Mortems I conducted in three broad lines.

I ascertained
1. The amount and appearance of the Tubercular deposit in the lung.
2. The frequency with which Tubercle was found in the other organs.
3. The appearance of the organs generally.

The Tubercular deposition in the lungs I divided into 3 classes. Table XVIII. This method of division is rough but it will serve the purpose required. It will be seen that about 80 p.c. of the cases presented an extensive Tubercular deposition in the lungs, in every instance both lungs were affected,
though not to the same extent. In the cases where the Tubercular process was slight, I noticed the frequency of Milian Tubercle. I have given a short history of the three cases in the 3rd division. It is difficult to exactly see what relation the scar bore to the course of the mental disease. K.M. developed all the signs of Phtisis following an extensive haemoptysis. From this, he to all physical appearances quite recovered, till within 8 months of death (5 years after admission) when, after a second haemorrhage, he gradually sank and died. Had he entirely recovered from the first attack of Phtisis? Probably not, as advance was I believe vicious throughout, perhaps healing in one direction as the cicatrix would indicate, but spreading surely though slowly in another. His bodily health was never the same after his first haemoptysis. In the second case, the lungs were apparently healthy on admission, seven months afterwards the showed physical signs of Phtisis, in rather over 5 months he died. The third case was a man, his bodily health was good till 2 years after admission, from this time a gradual deterioration in his health set in, no physical signs of Phtisis were recognised till 3 months before
deaths. No history of a Pneumonia prior to admission could be obtained in any of the cases.

The deposits in nearly all the cases of Extensive Tubercle were of a caseating nature with Vonnieke of varying size, the latter situated chiefly in or about the region of the Apices. In the majority, the deposition in the right lung, seemed of later date, and the affection of the left lung appeared secondary. In comparing the P.M.'s of the Maniacal and Melancholics, I noticed in the latter the Tubercular disintegration was more chronic and more extensive than in the former. In the 117 cases examined, 62 were men and 55 women. Pneumonia appears to be more common amongst the men.

III. Frequency of Tubercle in other organs.

Table XIX represents the frequency of Tubercular deposition in the other organs. The commonest lesions concomitant with the Pneumonia Pulmonalis, were, Tubercular Ulceration of the Intestines and Tubercular affection of the Mesenteric glands. The most extensive depot met with was in a woman whose Lungs, Larynx, Spleen, both Kidneys, Mesenteric and Bronchial glands were the
seats of large cajalising nodules. In one case there was mention of some scattered "milky seed spots" in the Dura Mater; beyond this I was unable to discover evidence of tubercle in the nervous system. Dr. Coulston (Tub and Insanity, p. 17) found it in 8 cases out of a total of 282 examined.

IV. The appearance of the organs generally

An anaemic state of the organs, combined with a more or less fatty degeneration, were the most marked pathological features. In cases of long standing Phtisis attended with Diarrhoea, waxy degeneration of Liver and Spleen was frequent. In only one case was there a Tubercular affection of the Kidneys. In the Brain the only noticeable feature, was an increased friability of the white and grey substance, with a general anaemia of the organs.

4. Is Phtisis Pulmonalis common amongst General Paralytics? What effect if any has its presence on the symptoms of General Paralysis?

I propose here to make enquiries in four directions regarding

a. The frequency of Phtisis Pulmonalis in...
General Paralysis

b. The nature of the mental symptoms in

Jul. G.P.

c. Duration of the G.P. and age at death

d. A summary of the Post Mortem

a. From our Register I obtained all the deaths from General Paralysis for a period of 26 years, they numbered 178, (136 men, 42 women) then from a study of the individual P.M's I ascertained in how many of them Phthisis Pulmonalis was present. Table XX gives a summary of the results. It will be seen from this Table that Phthisis — Pulmonalis occurs in about 20 p.c. of those that die from General Paralysis. Dr. Closson (Phthisis and Insanity p. 17) reports that out of a total of 92 deaths from Gen. Paral: 33 were Tubercular, (i.e. about 35 p.c.) of our 35 Tubercular Gen. Paralyses there were 29 men and 6 women.

Table XXI shows the relative frequency of Tubercle in the male and female. It will be seen that rather over ½ of the male General Paralyses were Phthisical, and of the females exactly ¼. This does not tally with Dr. Closson's statement (Jul. and Insanity p. 20) he found that ½ of his female Paralyses were Tubercular, he mentions, however, that the number of his
women were too small, to form any conclusion. From the above analysis of deaths from Gen.


Dr. Clouston remarks (Jub. and Insanity, p. 31) that in all his cases where tuberculosis was present with the general paralysis, the latter disease commenced with depression. The dementia of the 3rd stage of general paralysis occurred at an earlier date amongst the excited type.

**Delusions Table XXII.** It is evident that in a very large proportion of the tubercular gen. Paralytics, delusions either of a suspicious or grandiose type are present. In the 31 cases where I was able to ascertain the presence or absence of delusions, 25 or about 80 p.c. had delusions (Suspicious or grandiose). The latter occurred in 68 p.c. of the cases and the former in 25 p.c.

**Delusions of Suspicion**

Of those who had delusions of persecution, 2/3 were of the melancholic, and 1/3 of the excited type. The data are insufficient and one cannot conclude that delusions of persecution are more common amongst the excited types of general Paralytics.

These delusions varied greatly, but suspicion was the dominant feature, its intensity assumed many grades, from the vaguely expressed feeling of danger from an unknown source or person, to intense
bear with an absolute and stubborn resistance of food, with the belief that it was poisoned. These delusions, as in the majority of the delusions met with in General Paralysis, were more or less fleeting. In some of the patients the seat of the delusion was referred to an abdominal organ or organs e.g. that their "stomach was rotten". In none of the cases with visceral delusions was there to be found any pathological (macroscopic) lesion of the several organs.

Grandiose Delusions.

The commonest were delusions of pride, wealth, or great mental ability. In many cases they were distinctly attributable to the calling of the patient. One man (an engine driver) insisted that his engine was unmatched in beauty, size and speed, and affirmed that he could accomplish long journeys by it, in incredible spaces of time. Amongst the Tub. Gen. Paralyses as in the ordinary P. the delusions gradually disappeared as the Paralytic advanced, the patient being as little able to originate an idea as to express it.

Suicides.

Four out of the 14 cases in which
Melancholia preceded, or was the dominant feature in the Paralysis, attempted suicide. Of the exalted Tub. Gen. Paral. (21) only 3 or \( \frac{1}{7} \) were suicidal. The suicidal tendency would therefore seem stronger among the Melancholics, a survey of the Non-Tubercular G.P. pointed to the same conclusion.

### Duration of the General Paralysis

Authorities vary somewhat in regard to the number of years Paralytic patients live. (The following are extracts from Dr. Blandord on Insanity, p. 299)

M. Calmet: "Patients live 8 months, a year, 18 months, others for two or three years."

Griesinger: "The duration... varies from several months to about three years."

Table XXIII shows that out of the 21 exalted Tub. General Paralytics, 16 died within 2 years of the commencement of the Paralysis. Amongst the depressed General Paral, about \( \frac{1}{3} \) only (5) died within a corresponding time.

We arrive at the same result as held in the Tubercular General Insane, i.e., an exalted or maniacal state, plus Tuberculosis, tends to greatly shorten the course of the disease, with which the Tubercle is associated.
Age at death

Table XXIV summarises the average age at death, in the four classes mentioned. Males on the whole are longer lived than females. But much depends on the diet, and care expended on the patient.

Summary of Post Mortems.

It will be noticed from Table XXIV that 6 cases exhibit signs of a healing Phthisis. 4 were cardiac, and two had cutaneous deposits at the apexes. It is unadvisable to enter into a discussion regarding the curability of Phthisis in General Paralytic; the data are too small. Miliary Tubercle was the commonest form met with in those cases where the Tubercular deposit was slight.

Table XXVI is a summary of the frequency with which Tubercle was found in the other organs of the 35 General Paralytics.

Tubercle of the Kidney seems the most frequently accompanying the Phthisis; in every case it was of the Miliary type. In one of the cases of Tub Peritonitis, there was only a Miliary deposit, in Bladder, Uterus and appendages. There was no case of Tub on the Brain or membranes.
Part II

The accuracy of all results depends upon the frequency of investigations. Having therefore new material at hand in the Chester County Asylum I felt that there were many points in my former paper which might be strengthened or modified by a re-investigation. With this in view I have ventured to continue the subject on much the same lines as formerly but as will be seen in the course of the paper I have touched on one or two new points. I therefore thought it would be more advantageous to keep the investigations apart and not to blend them. In no way have I allowed my former conclusions or opinions to bias me in the analysis of the following 281 cases of Phthisis. Continuing the inquiry " Of Phthisis Pulmonalis as common a cause of death in Asylums as it used to be " I have followed the same plan as before. I have taken a sketch of 30 years ascertainment from the Registers and Case Books, all the deaths, deaths from Phthisis, and average numbers resident. These 30 years I divide into three periods of 10 years each, the results are summarised in Table XXVII.
Unfortunately there have not been Post Mortems made in all the deaths, in some they were made, but only a few rough notes kept, in the latter years they have been made on all cases where permission could be obtained. Every case has been carefully reviewed, in those deaths where the diagnosis was not confirmed by a Post Mortem, there were 6 cases which I felt justified in excluding from the Phtisical deaths. Of these, 3 or 4 had no entry for some months before the death, neither was there at any time in the history of the case a mention made of symptoms which would have justified the diagnosis. In the other two cases the entries were regularly made but no mention or indication even of a phtisical symptom.

The Table of percentages (XXXI) I worked out from the particulars contained in No XXXII; from the former it will be seen that there is a slight diminution of Phtisis as an assigned cause of death. The decrease 1 p.c. is slight, it is true, but as there is a diminished death rate in the last decade, this 1 p.c. in reality represents a greater diminution than 1 p.c.

It will be noticed that the male Phtisis death rate has risen 3 p.c. in the second
decade, this was due. I believe chiefly to the unusual number of male phthisical deaths in 1875, in this year they numbered 12, of these 5 were diseased on admission, and the lungs of two suspected, their average age at death was 36 in the preceding and succeeding years it was 26.

Dr. Davidson remarks in his Annual Report for 1875 "To some extent the mortality was affected by the almost unprecedentedly odd weather that continued for some months while the remarkable variability of the weather during the whole year was the reverse of conducting to the longevity of many helpless and helpless cases." But this can only be accepted as a partial explanation, for in the next decade we find that there is a diminution of only 6%. C.

As I remarked before there are many causes to be taken into consideration before a satisfactory conclusion can be arrived at that the death rate of Phthisis is really diminishing in Asylums, many of these particulars I cannot obtain, but I would offer the tabulated figures as indicators of the direction in which the truth lies.

Some of the cases which die from Phthisis do not develop the affection in the Asylum, and to determine whether Phthisis originating
in the Institution is really on the disease, as I think an important point, for from the results one is able to determine at least more accurately whether the frequent association of Tubercle with the insane, is due really to an unhygienic state of the Asylums, or to some marked predispositions in the insane to Phtisis. But here too, difficulties are to be met with. A patient whose lungs are thoroughly healthy is admitted, in the course of time Phtisis develops, but it must not be concluded that this is alone due to the Asylum, for apart from the question of hygiene there is that recognised predisposition of the insane towards Phtisis to be remembered, still one cannot help thinking that this frequency of Tubercle may largely be due to some removable fault in the Asylum. To investigate this I excluded from the Phtisical deaths all those cases where the lungs were suspicious or diseased on admission (therefore not Asylum developed). I did this for the three decades, taking the men alone. Women alone, and the two combined, the results are summarised in Tables $XXIX A$ and $XXIX B$. By the term Asylum developed Phtisis, I mean only Phtisis developed in the Asylum and do not refer to its causation. It will be noted from Table $A$ that there is no
steady though slight decrease in the p.c. of
deaths from Phthisis developed Phthisis.
In Table B we find a marked diminution
amongst the women, in the men there is
an increase of 1.7 in the second decade,
this remains stationary in the third.
I think the results of these figures help
to strengthen the conclusion before arrived
at that Phthisis as an assigned cause
of death is diminishing in Asylums.
Further I think it may be considered
that this diminution is to a distinctly
recognisable extent, due to improvements in
the hygienic management of Asylums, for
our admissions are more numerous, our
accumulation greater and yet there is no
distinct diminution in the p.c. of Phthisical
deaths. If Insanity and Tubercle were so
intimately related as cause and effect, as
we are led to believe, would this diminution
in the Phthisical death rate be noticeable?

In what forms of Mental Disease is
Phthisis Pulmonalis most common as a
cause of deaths?

As the type of Insanity changes so
often during residence in the Asylum, I
thought a more satisfactory answer would
be obtained by investigating this point in
two directions 1st the mental state, on
and just previous to admission. The mental state at death. As the Medical Certificates of admission are entered in our case Books I was able to get all of the particulars for the first point. The mental states on admission of the 281 Pithicus cases are seen at a glance, in Table xxx. In 149 or 53.0 p.c. the first symptoms were those of Mania, in some one of its forms, varying from slight excitement to violent and acute excitement. I have not attempted a further subdivision of this class as I do not think it would be reliable, for from entries which extend over a course of years it is often difficult to trace sufficiently minutely the mental conditions. This result tallies with that already arrived at, for out of 117 cases examined at Lcharlands 55 p.c. were Maniacal. There appears to be no difference in the sex, 74 were men, and 75 women. The Melancholies formed 19.2 p.c. of the total cases, at Carlisle the p.c. was 22.2 p.c. Melancholic as the first symptom in those that die of Pithosis, appears to be more frequent among men but these numbers are too small to carry much weight (men 30, women 21). In determining which is the most common
mental state at death, the cases of Mania Melancholic and Dementia (on admission) only are included for naturally the Imbeciles and Epileptics fall into another class. Out of these 224 cases 99 died. Demented (44 per cent) 83 were Maniacal and 42 Melancholic. Table XXXI.

More women seem to reach the Demented (secondary) stage than men, so here as in the ordinary insane the accumulation of women seems greater. Dementia usually meaning longer life. Of the men on admission there were 74 Maniacal, 30 Melancholic and 10 Demented. Of these 47 or 41.2 per cent reached the stage of Dementia, the corresponding numbers in the women were 75, 24.11 of these 52 or 47.2 per cent became demented before death.

How if at all are the symptoms and course of the insanity modified by Phthisis and what influence if any, does the special form of insanity exercise on the Phthisis?

I propose to make the several inquiries in much the same way as previously done, accentuating particularly the cause, state of lungs on admission, Residence in Asylum, with delusions and suicides —
commencement and duration of Phtisisical symptoms, age at death, possibility of recovery from Phtisis, and Mental arrangement

Cause Table XXXII

In 57 cases a cause could not be ascertained, of the remaining 2244, it will be seen that "Previous Attack" ranks highest, as was found in 18.3 p.c. of the cases, this appears to be a little under the frequency, with which it is met in the non-Tubercular insane, in the latter I found it 14 times (19.6 p.c.) out of a corresponding number of cases chosen at random, extending over about 20 years and including both sexes. Hereditary predisposition appears a stronger factor in the production of Insanity in the Tubercular than in the non-Tubercular insane, in the former it occurs in 14.7 p.c. of the cases, in the latter I found it is only 10 p.c. I do not believe this really represents the frequency of Hereditary predisposition as a determining cause in the insanity, at Carlisle I found it in 36.7 p.c. of the cases, this I think is rather high. A partial explanation of this difference might be found in the fact
that the districts from which we draw our admissions contain mining and other centres of industry, the members of the population are more nomadic in their habits and their family history is therefore difficult or impossible to trace. In a more purely agricultural county as Cumberland and Westmorland this difficulty is not so great, as can easily be understood. With such a difference in the percentages one can scarcely venture to give a definite value to Hereditary Redispersion as a factor in the causation of insanity, either in the Tubercular or non-Tubercular. But I think it may be stated a certainty that Hereditary Redispersion is one of the strongest factors in the production of insanity, and further that it figures as a cause more frequently in the Tubercular insane. In the comparison of the Tubercular and non-Tubercular, one notices that congenital cases are much more frequent in the former, i.e. 15.1 p.c., in the latter out of the 224 cases I only found 6, that is, 2.6 p.c. Is it possible that an Imbecile when Tubercular is less easily managed and therefore has to be sent to an Asylum, whereas had he not developed Phthisis his presence would have been
tolerated at home? The frequency of Tuberculosis in Infants is well known. In the Lancet of 1877 Vol. 11 page 356 it is stated by Dr. Down that the mortality per 1000 at Easwood was 398 as contrasted with 115 in London. I would venture to propose that this high mortality in Infants is due to heredity and a probable diathesis, but also on the child's part, to results from a defective innervation which would include general sluggishness, improper mastication, and an inability to assimilate food, further these weak points are still more weakened by accidental causes, i.e. poverty of parents, and its many attendant ills, which need not be specified here.

On the whole the cause of the insanity appeared to affect the sexes equally.

The most marked difference was found in the Alcoholics, of the 12, 9 were men, this no doubt is due to the greater frequency of drunkenness among men.

State of Lungs on admission

I propose to classify all the admissions under three heads, 1st Lungs Phthisical on admission, 2nd Suspected to be Phthisical, 3rd Healthy as far as could be ascertained taking each individual case under the
above heads I ascertained the length of their residence in the Asylum. Of the 287 cases examined, it will be seen from Table XXXIII that 56 were Phthisical on admission, that is 19.9 p.c. of the total, 73 (25.9 p.c.) were suspicious, and 152 healthy as far as could be ascertained. One cannot definitely say, with truth, that these figures, absolutely represented the state of lungs on admission, but they may be considered as sufficiently accurate to base general conclusions on. The physical examination of the insane is at all times surrounded with difficulties which are rarely met with among other class of patients. Many are averse to the use of the Sphygmograph and will never permit a satisfactory overhauling; others, too maniacal to be examined at first, may in a later period quieten down somewhat, but as they talk, laugh or shout the whole time, the examination is never satisfactory. The third difficulty is met with in the Demented, and those deeply submerged in Melancholia, they may permit physical examination (I refer especially to the Heart and Lungs) but in no way do they aid one. Their breathing is so shallow that there may
be many parts of the lungs from which the respiratory murmur appears to be entirely absent, reasonance, type of breathing, accompaniments etc., cannot be tested. It is said that one may take a hose to water but 20 cannot make him drink, and so it is here, the patient will allow himself to be lead and stripped for examination, but no amount of coaxing or scolding will persuade him to "take a deep breath".

All Melancholics are not so, neither are all Demented, but I have mentioned these difficulties so that they may be remembered and allowed for in the consideration and evaluation of Table XXXIII. That many of those Phthisical on admission, die within a year's residence I knew from former experience but I did not expect that 78% of those deceased on admission should thus die.

Of these 44, 3 were congenital Imbeciles, and two Epileptics perhaps these 5 ought not to be included for in the latter cases there were severe epileptic fits, the presence of which would tend to shorten life, more than the lungs equally diseased and the patient free from fits.
All our admissions here are from the poorer class, the being so, the bodily health of the Imbeciles would doubtless be much lowered, the lower standard of health being due in this case to an accidental and unduly accentuated cause i.e. the poverty of the parents. But even excluding these cases there remains a p.c. of 69 who die within a year’s admission, and this in spite of every attention. The remaining 39 were composed of 30 Tubercular, Mania, and 9 Melancholia, unfortunately the history of the commencement of the Phthisis cannot be obtained. In the former class (Mania) the average duration of the mental disease before admission was 181 days (roughly speaking 6 months) in the latter class the average was only 90 days. The difference in the duration of these two mental states before admission would at least indicate that Melancholia associated with Tubercle calls more urgently for Asylum treatment, than Mania associated with Tubercle. I thought that perhaps an explanation might be found in the attempts at suicide, inasmuch as I believe that an attempt to take one’s life shews to the relations, more clearly than any other symptom...
the necessity for restraint in an Asylum. Of the 30 Maniacal 5 had attempted suicide and 1 threatened, but of the melancholies, 4 had attempted self-destruction. The totals in the latter class (9) are rather small to carry much weight, but it is interesting to notice that nearly 1/2 had attempted suicide, whereas in the former only 1/6 were suicidal. This possibly may help to explain the marked difference between the durations of the respective mental states before admission.

Some cases Phthisical on entry, improve in their bodily health after admission. Others appear to remain more or less unchanged, their health varying from time to time. This was the case in the one patient who lived from 5 to 6 years after admission. During the whole course of her residence she was never entirely free from Phthisical symptoms and refused her food most obstinately. At her Post Mortem, both lungs were Interstitial throughout. The 14 patients that lived over 3 years after admission were Demented prior to their death, thus possibly prolonged their life.

Of the 18 suspected lungs that died
within a year of admission 13 were
Maniacal so it is possible that some
of these cases were really Phthisical.
The 2 who died within the year in
Class 3 (Acute) were acutely Maniacal,
it is possible here also that the real
state of the lungs might have been
overlooked, one of them had violent
diarrhoea which probably hastened his
end, the other appeared to have
contracted a pneumonia shortly before
death.

Delusions

These did not appear to be so common
as in the previous 117 cases examined,
in them 55 p.c had delusions, here
we find a total of only 98 out of
281 or 34 p.c. The marked frequency
of delusions of persecution and suspicion
are again seen (Table XXXIV) they
numbered 44, that is 14.8 per cent
of the total cases, this tallies with the
previous result. Under the heading
"various" are included those which
cannot be otherwise classified, they
were more permanent than the fleeting
delusions, many of them resulted from
a misidentification of those around. The
"Visceral" were those which were referred
especially to some one of the viscera, those delusions of poison in the food (intentionally and for the purpose of poisoning) I included under the heading of persecution and suspicion. It is noticeable that in some cases there is a periodic accentuation of the delusions (not always the same delusions) which I believe may often be associated with an exacerbation in the phthisical symptoms and possibly results from them.

When reading Louisy's Researches on Phthises page 432 (et seq.) I was struck by his remark, that latent Phthisis may produce severe general symptoms, prior to the development of the cough. The functions of nearly all the organs but the affected one (the lungs) appear to be disturbed to a recognisable and at times severe extent. When it is remembered how great is the frequency of latent Phthisis in the insane, the application of the above remark may help us to understand why the mental aberration is at times so great in the commencement, or during the early course of the Tubercle. For taking first those cases where the lung affection and mental deterioration apparently appear together, may the latter not be the result of the severe general symptoms indicative
of the Phthisis. Here it would be natural to conclude that the most susceptible — (weakest) organ would be the first to show signs of inability to perform its normal function and thus give rise to the necessity for restraint in an Asylum. This remark of Louis may also help us to understand those cases, already in an Asylum, where from some apparently unknown cause there is an acute exacerbation of the mental symptoms. In some cases may not the latter be due to a commencing Tubercular deposition? The already unbalanced mental functions being agitated afresh by the insidious development of the Phthisis. In reading our cases I was several times struck by an exacerbation of the mental symptoms, followed on every shortly by a recognisable development of Phthisis.

Suicides (xxxv)

The chief methods of attempted suicide were strangulation, precipitation, and cut throats, the last being the most usual. Of the 281, 135 p.c. were actually suicidal in every case prior to admission, 21 p.c. either threatened or attempted to take their life. Suicide here too was noted to be more common among the Tubercular —
Melancholies. Out of the 547, no less than 27.1 per cent had attempted suicide, and 19.7 per cent either attempted or threatened. From the 149 Maniacal 15.4 per cent attempted, 27.1 per cent threatened or attempted commencement and duration of Phthisical symptoms. Table XXXVI

It was seen (Table XXXIII) that 152 of the total cases were apparently healthy on admission, of these, two died within a year's residence. Their cause of death has been commented on previously. In investigating the duration of the Phthises, I kept the two classes, suspicious and healthy apart. In the insane Phthises in its earliest stages rarely comes under our notice, this is due chiefly to its insidious commencement. But it must also be borne in mind that the mentally afflicted in most cases are unable to aid us in the recognition of the primary stages, thus many of the chief symptoms may pass unnoticed, because not complained of. This may help to explain the apparent and great lateness of Tubercle in the insane. There is little to add to my former remarks on the commencement of the Phthisis. But I would wish to accentuate the necessity to make of
through and searching examination, when an apparently unaccountable exacerbation (e.g. such former attacks) of insanity occurs. The variation may be towards the reverse type as in the following case.

M.R. Noisy on admission lungs evidently healthy, delusions fleeting, remained noisy for one year, quietened very much, then became suddenly melancholic, refused food and had delusions of suspicion, contemporary with this mental change, the bodily health got much worse, phthisical symptoms developed and she died within two years of the mental change.

Resistant refusal of food either with or without delusions is very often a strong indication of the commencement of Phthisis. In the majority of the cases it was most marked in the earliest stages of the disease.

It was previously ascertained that of those diseased on admission from 69 to 78 per cent died within a year's residence, that is, at least within a year of the commencement of the symptoms. Unfortunately as the history of the commencement of the Phthisis could not be ascertained, the deaths within the year, in the classes healthy and diseased cannot be
compared. It will be seen from Table XXXVI that 32.2 p.c. died within 6 months of the commencement of the Phthisis and 25 p.c. within 6 to 12 months. This making a total of 57.2 p.c. that died within a year of the commencement of the Tubercle. This is about 3 p.c. higher than was obtained in my previous cases at Garlands.

It is interesting to note that just over 5/10 of the Maniacal cases died in 12 months, whereas more than 6/10 of the Melancholics died within a corresponding time. It would seem that once Tubercle develops, its course tends to be shorter in the Melancholic, and still in the latter the average age at death is rather higher than in the Maniacal. A possible and partial explanation may be, that though the course of Phthisis is shorter in the Melancholic, the average age at which it first commences is rather greater in them than in the Maniacal. But it must also be remembered that though as a whole, the physical symptoms are better marked in the Melancholics, the earlier symptoms may be more masked by the mental depression. Therefore in reality the course of the
Phthisis may be of equal duration in the
two diseases. Still though it cannot be
supported here by the results arrived at
from the Analysis of the 281 cases I
am greatly inclined to believe from personal
observation that the cause of the Phthisis
is shorter in the Maniacal than in
the Melancholic. The two cases which
are given as extending over 8 years (one
was 9 the other 10) were almost alike
in their history, they were noisy and
excited on admission, after about 18
months residence they quietened, the one
gradually but surely became Demented,
the other from the entries appeared to
be improving very much; at first, then
about 24 months after admission she had
a recurrence of excitement, on her recovery
from this, her bodily health was very
weak and symptoms of Phthisis developed,
she then gradually became Demented
(about 4 years after admission). The
Tubercular process now appeared arrested
and her bodily health improved under
treatment, but during the 10 years of
the course, it very now and then broke
down, so I am inclined to consider that
the Phthisis never really disappeared.
It was there but it was dormant.
This too appears to be the reason why in some of the other Mental states the Pthysical symptoms were spread over such a number of years.

XXXVII. From those suspicious on admission 63 p.c. died within a year of the commencement of the Tubercle, this appears to be an unusually high p.c. but doubtless several were really Pthysical on admission, their mental state preventing a satisfactory examination being made. In this class nearly 70 p.c. of the Maniacal died within a year, and of the Melancholics just 50 p.c. This I think represents somewhat more accurately the course of the Pthysies in the two Mental states. As was previously stated 78 p.c. of those Tubercular on admission died within a year's residence. This is a very much larger p.c. than was obtained at Garlands (about 50 p.c.) The truth is to be sought for in the mean between them. The actual p.c. would in this case be modified by the class of patients, their methods of life and the General Pthysical death rate in the County.

Age at death XXXVIII

On the whole there appears to be
a general lowering of the average age at death here, as compared with Spalding's, but this can be explained by the fact that patients received here are at times mere children. Some being 10, 11, and 14 years of age at their death. Much the same results were arrived at as formerly. In Table xxxviii the first column P is the age of the Phtisisal, the second column N'P is the average age at death in a corresponding number of non Tubercular cases. Tuberle associated with any mental disease lowers the average age at death. It appears to be most marked in the class of Dementos. It is practically equal in the sexes.

Possibility of Recovery

The prognosis must always be unfavorable in those cases where Phtisis is associated with insanity. It is difficult to draw any satisfactory conclusions on, but I attempted to determine from the material at hand, 1st whether a pre-existing Phtisis always ends in death when it is attended by an attack of insanity 2nd does a patient ever recover from his mental affliction when Phtisis develops during its course?

In the first class the number of recoveries (apparent) from the pulmonary
affection are very few. I was only able to meet 3 cases. In all of them the mania was transient and was followed by a period of sub acute melancholia. The recovery from the Pthisis appeared to be very slow, for though there was an almost sudden disappearance of the physical signs (as far as could be ascertained) the patient's general bodily health was decidedly below par. The after history of those discharged from the asylum can rarely be ascertained, so it is impossible to say whether the Pthisis had really healed or not. Still from the evidence one would be lead to conclude that there are some cases of Pthisis which really seem to recover, or at shortly after an attack of insanity. Whether the insanity and the recovery are truly connected as cause and effect is most impossible to say.

Is there a possibility of recovery from the Mental disease under Pthisis develops during residence in the Asylums?

In determining this point one is again met at the commencement with the difficulty of obtaining sufficient material to base satisfactory conclusions on. In the records obtained from the case books I was
only able to meet with 3 cases where
the mental recovery was sufficient to
permit of the discharge of the patient.
There are many who evidently improve
very much mentally, or even entirely
recover, during the last stages of Tubercle.
But their condition is so reduced that
even an attempted removal from the
Asylum would be fatal. The entire
clearing of the mind is often seen just
previous to death, not only in Tubercle
but in other bodily diseases. There were
several such cases in the 287 examined,
but they are not included here, for
from the nature of their termination (i.e.
death) one could scarcely determine
whether the recovery was complete, or
only temporary.

Of the 3 cases alluded to all were
Maniacal, but one, a woman, passed
through a stage of Melancholia with
slight stupor previous to recovery. Her's
was really the most interesting and
instructive of the cases. E. B. admitted
6. 2. 91. Cause of insanity, H.P. on
father's side, and domestic affliction.
Weight 15 ft 6 lbs, she was Maniacal,
towards the end of a years residence
she became Melancholic almost Demented,
she began to lose flesh, 2 years after admission was mentally unchanged (weight 84 8 lbs) confined to bed with all symptoms of Phthisis, after two months in bed she brightened up and within the next two months was discharged recovered (104 8 lbs) Her lungs were still affected (at the apices) but not to the extent they appeared to have been.

The other 2 cases also of Maniac were for only a short time resident and not very satisfactory in one the Phthisis followed a pneumonia. The two men appeared to have thoroughly recovered from the Maniac. In both cases alcoholic excess was the exciting cause. It would thus appear that there are cases where in spite of a well developed Phthisis there is an entire recovery of the mind. It may be that these are analogous to those cases where there is a complete clearance of mind just before death, only in them the prostration is so great that death occurs. In the former the vital energy and power to live are not so entirely drained. Mental recovery taking place earlier, there is a greater stock of vitality left hence life occurs and not death.
I would submit the following conclusions which I deem to be justified by the result of the investigation. I do not claim for them absolute accuracy, for the material on which they are based may possibly in some instances be themselves inaccurate.

I. Phtisis Pulmonalis as an assigned cause of death in Asylums appears to be diminishing, the slight numerical decrease may mean much more than is at first evident.

II. Asylum developed Phtisis is not so frequent a cause of death as it used to be, due to

a. The great improvements in the hygienic conditions of Asylums.

b. The general treatment of the patients therapeutically, mentally and dietetically and to a more careful supervision of their daily exercise and amusements.

III. Taking the whole course of the disease, Manic is the most common Mental disease, in which Phtisis Pulmonalis is the cause of death.

IV. In 53.0 p.c. of the Tubercular cases Manic was the first symptom and existed on, or just previous to admission
19.2% were Melancholic.

24% of the cases examined died Demented.

VI. Most women die demented than men, the former 47.2% the latter 41.2%.

VII. Absolute Dementia is not reached by many, it is most common among the Melancholics.

VIII. In those cases where Tubercle was found associated and Insanity, Hereditary Predisposition and Previous attacks were the strongest factors in the production of the insanity, as compared with the non-Tubercular insane the former was more frequent, the latter less so.

IX. Congenital Idiots die very frequently of Phthisis.

X. From about 60 to 70% of those Phthisical on entry, die within 5 years, residence.

XI. The commencement of the Phthisis is usually insidious.

XII. Of those Phthisical on entry the duration of the Mental disease prior to admission was shortest in the Melancholics. This may possibly be due to a more active suicidal tendency in them, therefore necessitating Asylum treatment.
XIII Delusions of persecution and suspicion are the most frequent delusions met with in the Tubercular insane; they occur in about 45 per cent. of cases; this is a higher per cent. than in the non-Tubercular.

XIV Suicide is more common among the Maniacal, in the former about 27 per cent., in the latter about 15 per cent., had attempted suicide.

XV Refusal of food, exacerbation of insanity, and accentuation of delusions are often indications of a commencing Phthisis.

XVI From 53 to 60 per cent. of those that are healthy on admission, die within a year of the commencement of the Phthisis.

XVII About 60 per cent. of those that are diseased on admission die within a year's residence.

XVIII Over half of the Tubercular die within 3 years of the commencement of the insanity.

XIX Tubercle associated with any mental disease lowers the average at death, in Dementia about 12 years, in Melancholia about 10, and in Mania about 6. There is no difference in the sexes.

XX Tubercle in any way associated with insanity necessitates a grave prognosis, but there are some subjects in whom an attack of insanity (Mania followed by acute Melancholia) appears to benefit the Phthisis.
A very small p.c. of cases among the insane recover from their mental affliction when it is connected with Pthisis. It is oftenest seen in those of middle life. An Hereditary Pre-disposition of Pthisis does not appear to be a detering factor.

Examination of the Post Mortem showed extensive Tubercular deposit in about 2 of the cases.

The slightest forms of Tubercular deposit are usually Military.

Pthisis Pulmonalis occurs in about 3 of those that die from General Paralysis.

a. The commencement of the Pthisis is insidious and in some cases entirely latent.

b. Grandiose delusions are the commonest in Tubercular General Paralyses.

c. Suicidal tendencies in the depressed Tubercular General Paralyses are more common than in the excited.

d. The course of the Paralysis is shorter in the excited General Paralyses than in the depressed.

e. Tubercular affection of the kidneys is the most frequent concomitant of Pthisis in the Tubercular General Paralyses.