

this section been granted by his Committee, and that was a failure. The Committee made many inquiries through the Foreign Office as to the boarding-out system in foreign countries and also as to the methods adopted in Scotland. Some fifteen years ago a clause adapting the Scotch system of boarding-out was, at the instance of the Asylums Committee, inserted in a Lunacy Amendment Bill introduced by the Lord Chancellor in the House of Lords, but the Bill was sacrificed at the end of the Session. He was doubtful whether the boarding-out system would be of much use in the County of London, as most of the friends and relatives resided within the county. Other counties with large rural districts might usefully employ this method if the Lunacy Act were amended. In any case it would be well to have the power, in order to make the experiment.

Dr. STANSFIELD spoke of the unanimity of opinion expressed, and the way in which various questions raised during the discussion had already been answered by other speakers.

Dysentery, Past and Present⁽¹⁾. By H. S. GETTINGS,
L.R.C.P., D.P.H., Pathologist, West Riding Asylum,
Wakefield.

ADJOURNED DISCUSSION,

At the Quarterly Meeting in London, November 25th, 1913.

Dr. SIDNEY COUPLAND, in opening the discussion, said: I need hardly say that I have read Dr. Gettings' paper with great interest, and have found it, as other readers must have done, very instructive as well as entertaining. What gives particular interest to his graphic story is the fact that it is based upon the continuous medical records of an institution for nearly a century, and in this respect it must surely be unique. From a remark in the paper, apparently more zeal in clinical note-taking was exhibited in the earlier than in the later period of the history of Wakefield Asylum, but I feel sure that, if this be so, the lapse can only be temporary. As regards dysentery, it is certainly remarkable that a disease, once fairly common in this country, should have almost entirely disappeared from the community at large, a disappearance which seems to have coincided with that of the last serious visitations of cholera in the middle of last century. Even if we accept the usual explanation that these diseases, like typhus, have been banished in consequence of wide-spread improvement in urban and rural sanitation, especially as regards drainage and water supply, we yet cannot ignore the fact that many an insanitary area still exists which *à priori* might be

expected to favour the spread of such disorders. We know, too, how great a scourge dysentery has been to armies in the field, where conditions of fatigue, exposure, imperfect diet, as well as defective sanitation, favour the development of intestinal disorders. My own limited experience confirms the fact of the rarity of dysentery in the general population. During the past thirty or forty years the average number of cases of dysentery admitted into the wards of the Middlesex Hospital has not exceeded one *per annum*, and in the seven years (1873-9) that I worked in the *post-mortem* room I only had to examine two subjects of dysentery, one of whom had contracted the disease in India. I was therefore much surprised to find, on joining the Lunacy Commission, that almost daily notifications were received from asylums of deaths from "colitis," mostly ulcerative in character, and clinically indistinguishable from dysentery, as had been well shown by Dr. Gemmel just about that time. Dr. Gemmel's monograph, published in 1898, was founded on his personal observations at Lancaster Asylum, where for some years "idiopathic ulcerative colitis" had prevailed. It would, therefore, seem as if dysentery, whilst dying out from the population at large, had found a habitat in asylums, whose inmates, owing to their careful segregation, were less liable to most of the zymotic diseases. Regarded as an infective disease, which Dr. Gettings holds to be a sufficient explanation of its persistence in asylums, one can well understand the difficulty in getting rid of it once it has gained a footing, owing to the conditions of asylum life, and the faulty habits of many of the inmates. But it is only of late that it has been so regarded, for it has been customary to ascribe its occurrence to bad sanitation, of which, indeed, colitis was almost considered to be an index. Such a view seemed to be supported by instances like those mentioned by Dr. Gettings in the Wakefield Asylum, of outbreaks of dysentery coinciding with grave sanitary defects, the removal of which was followed by the subsidence of the disease. A classical instance is that of the outbreak at the Cumberland and Westmorland Asylum in 1864, reported on by Dr. (now Sir) Thomas Clouston, then its medical superintendent. The outbreak, which was a severe one, and accompanied with a high mortality, was connected with the irrigation of fields adjoining the asylum with untreated sewage. Col. Kenneth

Macleod referred to this epidemic in a discussion at the Epidemiological Society in 1901, and said that when he himself was assistant medical officer at the Durham Asylum in 1864 there was a similar outbreak of dysentery also, and, as at Garlands, it was associated with sewage irrigation. These and similar instances all lent support to the opinion that dysentery resembled enteric fever in being a "filth disease," meriting as much as the latter the appellation of "pythogenic," which Murchison applied to typhoid.

But although such evidence favoured the doctrine of a *de novo* origin of dysentery, it did not preclude the acceptance of the fact that it was communicable or contagious, if only exceptionally. A striking instance of this mode of spread is recorded by Dr. Creighton (*History of Epidemics in Britain*, vol. ii, p. 790) as occurring in 1848: "The brig 'Sandwich' sailed from Cork for Boston, U.S., in the end of May, carrying a number of Irish farmers and their families. Having met with rough weather and head winds she put in leaky to Penzance on June 7th. sixteen days out from Cork. The provisions had been bad, and there was sickness in the ship, with a very filthy state of things. Three of the women passengers died on shore of dysentery. The ship sailed again on July 10th, two more of the emigrants dying of dysentery before she reached Boston, while two of the crew survived the attack. On July 16th two cases of the same disease occurred among the lower class in Penzance, and thereafter the epidemic spread widely through most parts of the town and the three adjoining parishes. . . ." In the town of Penzance alone there were as many as 500 cases, with 82 deaths. Here, at any rate, there could be no doubt of its spread by contagion.

I do not think that I could give a better illustration of the change in the point of view in which dysentery has come to be regarded than by quoting a few passages from the speech made by Dr. Murchison in the debate on the "Germ Theory of Disease," which took place at the Pathological Society in 1875. I well remember that debate, and how most of the eminent authorities who took part in it declined to accept as a theory what has now become a fundamental fact in the pathogeny of specific diseases. Dr. Murchison said: "I cannot conceive of anyone not biassed by pre-conceived notions about the germ theory denying the independent origin of diphtheria

and dysentery, which as to degree of contagiousness and other characters rank among the acute specific diseases with cholera and enteric fever." And he concluded his remarks by saying : " Lastly, on the germ theory it is impossible to admit that any contagious disease can arise independently of a pre-existing one. In point of fact the advocates of the germ theory deny that this is possible ; they will have no fact in its favour. But, did time permit, many facts might be adduced to show that certain of the contagious diseases arise *de novo* at the present day ; and all have probably done so at one time or another in the world's history. I will content myself by observing that the evidence of the independent origin of such contagious diseases as pyæmia, erysipelas, diphtheria, dysentery and enteric fever is, in my opinion, so strong that I can only conceive its being rejected by minds pre-possessed by the germ-theory " (*Path. Trans.*, vol. xxvi, pp. 316 and 319). When these words were spoken bacteriology was in its infancy, and there were few who appreciated the full significance of the work done by Pasteur and Lister.

It was not until 1900 that the prevalence of dysentery in asylums was explained as being primarily due to its infectivity, and that, as with typhoid, insanitary conditions, though conducive to its spread, were not essential to its origin. I believe this was first propounded by Drs. Mott and Durham in a report on the prevalence of dysentery in the London County Asylums. In the following year Dr. Mott read a paper on the subject before the Epidemiological Society. He showed that whilst not neglecting every hygienic precaution, and a treatment of the dysenteric patient on the same lines as a case of typhoid, it was necessary (owing to liability to recurrence) to keep him under observation, after his attack, lest he became a focus for fresh infection. By a system of notification and registration of the cases occurring in the London County Asylums and the adoption of his recommendations, a considerable diminution of the mortality from this disease has been effected in these institutions. Accepting, then, the view that asylum dysentery is primarily an infective disease, it becomes necessary to endeavour to explain the reason why it is so infrequent in some institutions, so common in others, where it may be said to be endemic. Then how are we to account for the occurrence of epidemics, sometimes of marked

intensity, if of brief duration? Dr. Gettings seems to favour the doctrine of an epidemic periodicity within asylum walls, analogous to the epidemic waves which have been noted in all countries from the dawn of medicine, and which have never been satisfactorily explained. But I think that a less vague explanation will often account for these outbreaks, many of which have been clearly traced to fresh importations of dysentery, or to coincide with soil-disturbances, defects in drainage and other conditions prone to favour a ready dissemination of the virus, and possibly also a higher degree of infectivity.

Speaking for myself I certainly felt, when listening to Dr. Mott's paper, that we required more definite knowledge of the prevalence of dysentery in our asylums, and could not but admit the force of the President's (Sir Patrick Manson) remarks as to the ignorance and inertia of lunacy authorities in the matter. The establishment of a register of dysentery and diarrhoea (on the lines of that framed by Dr. Mott) has resulted in the annual publication of a summary of returns from every asylum since 1902. These returns, together with information on details kindly furnished by medical superintendents, have afforded much material for study, besides enabling us to gauge the extent and distribution of dysentery in the asylums of this country.

The chart now produced has been prepared from the statistics thus obtained. In it the existing 95 asylums are ranged in the order of their opening, extending from the year 1814 to 1909. It has been drawn on a scale to indicate for each year of the decade 1903-12 the dysenteric incidence and mortality per 1,000 inmates. It will be seen that out of the 86 asylums which existed in 1903 there are 34 in which cases of dysentery were reported in each year of the decade, 35 in which cases occurred in from five to nine of these years, and 13 in which cases occurred in only from four to one of the years, there being five asylums in the last category, namely, Nos. 25, 44, 46, 71, and 77. Lastly, in four asylums (Nos. 5, 54, 80, 83) no cases were reported in any year. Of the remaining nine asylums one was opened in each of the three years, 1904, 1905, and 1909, and two in 1906, 1907, and 1908 respectively. Cases of dysentery were reported from the year of opening in three (Nos. 92, 94, and 95), in every year but the first in one (No. 91), and in

seven out of nine years in one (No. 87). Only one case was returned from No. 90 during the seven years it has been opened, whilst no cases have yet been notified from No. 89 (opened seven years) and No. 93 (opened six years). Selecting from the list only those institutions in which the average annual dysenteric incidence was not less than 20 per 1,000 (or 2 *per cent.*) of the total number of inmates, we find these amount to 27, of which number 20 had cases in each year of the decade, and 2 were asylums opened subsequent to 1903. It will also be seen from the chart that in very many asylums the cases of dysentery were quite scattered and sporadic, amongst them being the three before-mentioned as having been the seat of outbreaks in former years, namely, Nos. 2, 29, and 37. With the chart before us I may briefly allude to those asylums in which dysentery has been more or less persistent, indicating any special points it illustrates, but I must refer for more ample detail to the reports furnished from the asylums in the published blue-books. In No. 8, an old-established asylum, there were three distinct epidemics in 1905, 1907, and 1910, which considerably raised the average incidence-rate for the decade. These outbreaks were traceable to fresh infection either by admissions or from recurrence of the disease in a patient after a long interval. No. 13 is noteworthy from the fact that prior to 1909 the asylum had been fairly free from dysentery, but in that year the incidence-rate rose to 91 per 1,000 from 4.5 in the preceding year, and there has not since been very much abatement. In No. 16 the disease is endemic rather than characterised by epidemics, but the incidence has ranged from 35 in 1905 to 8 in 1910. In No. 17, with similar endemicity, there were excessive numbers of cases in 1906 and 1908, but whilst the incidence remained high there were no deaths from 1909 onwards. No. 20 is an important city asylum, where deaths from dysentery are reported every year; but the annual average incidence of the disease did not amount to 17 per 1,000 in the ten years under review. However, in 1910 there was a considerable outbreak, chiefly confined to the female inmates, and in that year the incidence was as high as 55. In No. 23 the years of chief incidence were 1903, 1905, and 1910, but the level has never been exceptionally high, although the average was about 21.

No. 24 is an asylum where dysentery used to prevail to a large extent, and Dr. Legge has published a valuable report on it. It still occurs there, but to a lesser degree than in 1906-7. No. 26 is another asylum where much dysentery occurred in former years, with many deaths. Some outbreaks appeared to be connected with the excavation of soil near the wards. It will be seen that the incidence-rate was low from 1903-6 and that it then rose suddenly, attaining a maximum in 1909, since when it has declined somewhat. No. 28 is a very interesting example, as for several years it furnished the highest dysenteric mortality of all asylums. From 1903 onwards the disease has declined year by year in a striking manner, the rate falling from 87 in 1903 to 2 in 1910. It is worthy of note that this decline set in before the overcrowding was relieved by the opening of a second asylum in the county in 1907 (No. 91). It is interesting that most of the cases occurred in the annexe and not in the original building. No. 33 is an old-established asylum, which until 1903 received patients from an important borough as well as from the eastern division of the county. In that year a new asylum was opened, to which all the county patients were removed (No. 86). Cases of dysentery soon occurred amongst them, and increasing year by year the incidence-rate in No. 86 was as much as 109 in 1911, but fell to 63 in the following year. The rate in No. 33, which had fallen considerably, rose in 1912 to 47.5. No. 34, where there has always been a high mortality from dysentery, experienced a marked epidemic in the autumn of 1905, most of the patients being from wards on the ground floor. The outbreak coincided with the completion of new sewerage works, and no proof of contagious transmission was obtained. In No. 40 there were three definite outbreaks in 1905, 1907, and 1912, which last was the most severe, whilst there were but few cases in the intervening years, and in 1909 none at all. No. 47, too, is an asylum which had two or three outbreaks in the decade, the most marked being in 1904. This asylum is situated near the river Thames, and the medical superintendent reported that dysentery was especially prevalent when there were exceptional floods. No. 49 is an asylum where dysentery has long prevailed in varying degree; it will be seen from the chart that after an increase of cases in 1904 there was a decline for four years, after which the disease

recrudesced, and cases were numerous in the next four years. No. 51 had an average annual rate of 38 per 1,000, the years of highest incidence being 1909 and 1911; it is evidently endemic here. No. 53 is an asylum where there had been much dysentery prior to 1903, but where, since 1907, there has been a notable decline. No. 56 is a large borough asylum, which has been overcrowded; here, too, there was much dysentery in the first half of the decade, but a marked diminution in the second half. No. 57 is a small borough asylum, where, except for one death in 1904, there were no cases from 1903 to 1908, the numbers culminating in 1910 and 1911, and falling to one in 1912. Somewhat similar is the record of No. 62, also a small borough asylum, but here the epidemic phase lasted for three years (1907-9), and seems to have returned after a year's interval. No. 65 is another asylum of this class, where the proportion attacked rose suddenly to a high level in 1904, followed in the next few years by a considerable number of cases, but with low mortality; then no case occurred in 1909, and but few in the next three years. No. 66 has hardly been free from dysentery throughout the twenty years of its existence. It was the main field of Dr. Mott's observations, and the prevalence of dysentery was found to be associated with drainage defects. In this, as in other of the London County asylums, there has of recent years been a gratifying diminution in the dysenteric incidence, doubtless due to the strictness with which measures of prevention are enforced. No. 69 is an asylum where dysentery increased from an incidence of four in 1903 to one of forty-nine in 1906, since when it has fallen gradually to seven. No. 72 is another of the large London County asylums where, in 1905-6, the notified cases were very numerous indeed, but the deaths were comparatively few. The diminution in the numbers attacked since those years is equally striking. No. 74 is an asylum where there has been much dysentery during these ten years, the incidence being especially high in the years 1906-7 and in 1910-11. Much careful study has been given to the subject by the Superintendent, Dr. Menzies, as is shown in the reports which he sent in with his annual returns.

I must refer to these various reports for many interesting details which bear on the ætiology of dysentery in asylums. They will be found to contain many facts which support its

contagiousness, and also others which seem to favour its "pythogenic" origin, but which latter probably merely indicate various indirect means whereby the infective agent may be conveyed to fresh subjects. The evidence for its infectivity is especially strong in such instances as that mentioned where the disease has been directly carried from an old to a new asylum (*e.g.*, Nos. 33 and 86). There are two recently opened asylums where dysentery has prevailed from the first, namely, Nos. 92 and 94, in which there can be no doubt that the disease was thus transferred, and in each of them—asylums built on the most modern lines, and without any obvious sanitary defects—dysentery has been exceptionally common. It is not easy to account for the occurrence of an outbreak in an asylum hitherto free from the disease, except on the view of its being introduced from without. Such has been the case in No. 64, a borough asylum opened in 1888, which remained free from dysentery until 1909, when there was an outbreak with an incidence of 66 per 1,000. For the next twelve months the asylum was free from fresh cases, but in 1911 another outbreak occurred.

The chart before you may not convey the whole truth as to dysenteric incidence, for it is possible that not infrequently milder attacks may have been overlooked. But, as Dr. Mott pointed out, such cases may be just as capable of conveying infection as those that are more characteristic, and their presence might be one reason for the persistence of the disease in an asylum. From the returns, which included epidemic diarrhoea as well as dysentery, another chart (which I now hand round) has been prepared. In it the amount of diarrhoeal incidence is superimposed on the dysenteric. To mention only a few examples: There is asylum No. 9, where dysentery is not abundant, but in some years, especially the first four of the decade, there was much diarrhoea in addition. In No. 20 there was much diarrhoea as well as dysentery in some of the years, and the same occurred in No. 24 in 1903. A remarkable epidemic of diarrhoea occurred in 1911 in No. 25, an asylum in which there had been only one case of dysentery throughout the rest of the period. There was no ground to suspect that this epidemic was dysenteric in character, and the same applies to several instances where diarrhoeal have coincided with dysenteric outbreaks. In the case of No. 32 there was much diarrhoea in 1903, and again in

1906–8, being associated with dysentery in these latter years. No. 50 is a striking instance of the association of excessive diarrhoeal incidence with a fair amount of dysentery, and to such a degree that a relationship was suspected between the two affections. No. 55, one of the largest of our asylums, has never had much dysentery, but a fair amount of diarrhoea, especially in 1908. In No. 61 there was much diarrhoea in the three years 1903–5, with dysentery in each except 1904; and in No. 75 there was a considerable outbreak of diarrhoea in 1909, and no small amount in the following years, but very little dysentery. No. 76, where dysentery was at one time common as well as diarrhoea, showed a great decline in both after 1905. One of the smallest asylums (No. 83) opened with an outbreak of diarrhoea, and another like outbreak occurred in 1911, but it has never had any dysentery nor any diarrhoea in the years 1905–12, apart from that in 1911. The asylum No. 91, which at its opening in 1907 received its patients from the sister asylum in the country (No. 28), had much diarrhoea in that year and subsequently, but dysentery did not make its appearance until 1908. From two asylums no cases either of dysentery or diarrhoea were reported, namely, No. 54 and No. 89 (opened in 1906).

Asylum dysentery is a fatal disease. The case-mortality on the total number attacked from 1903–12 ranged from 20 to 26 *per cent.* It must, however, be borne in mind that in many instances the only cases recorded in an asylum in a year were fatal ones, and that mostly a low incidence-rate was associated with a high death-rate (from dysentery), the deaths frequently equalling or out-numbering the recoveries. On the other hand, it will be seen that sometimes every case occurring in the year recovered, and that the death-rate was invariably much below the general average when the cases were numerous, and especially in epidemic years. One instance taken at random may suffice. In asylum No. 65 there were two deaths from dysentery in 1903 and also in 1904, but the incidence of the disease was more than seven times higher in the latter than in the former year. In spite of its fatality, dysentery does not contribute on an average more than 3 or 4 *per cent.* to the total number of deaths in asylums. A far higher contribution is made by tuberculosis, namely, from 16 to 18 *per cent.* In this third chart which I submit, an attempt has been made to

contrast the mortality curves of the deaths from all causes with those from these two diseases. It would appear that rise and fall of the general death-rate is generally associated with a like rise and fall in the tubercular, but less often with the variations in the dysenteric rate. It very rarely happened that the number of deaths from dysentery exceeded those from tuberculosis. This may be noted in No. 23, where, in 1910, the tubercular mortality was only 8 per 1,000 living, the dysenteric being 10. Other instances were: No. 34 (1905), T. 25, D. 31; No. 56 (1905), T. 9, D. 14; (1906) T. 12, D. 16; No. 65 (1907), T. *nil*, D. 11; No. 66 (1905), T. 9, D. 10; No. 68 (1906), T. 4, D. 7; and No. 72 (1905), T. 7, D. 14.

The main conclusions to be drawn from the facts contained in these asylum statistics and reports during ten years are practically identical with those based on more limited data, and set forth in the *Sixty-fourth Report of the Commissioners in Lunacy* ⁽¹⁾. The additional three years' experiences have only served to confirm those conclusions, with what is, perhaps, a most important exception. No mention was then made of the "carrier" doctrine as explanatory of the persistence of dysentery in asylums. I notice that Dr. Gettings puts this in

⁽¹⁾ (1) That in only about one-half of the asylums of England and Wales is dysentery so prevalent as to justify its being regarded as endemic or indigenous, and that in no small number of the remainder of these institutions the disease is very rarely met with, and in a few it does not seem to have appeared at all. (2) That its occurrence in epidemic outbreaks, though common, is by no means universal, some asylums, even with a high incidence-rate, being free from them. On the other hand, such outbreaks have arisen in asylums where previously cases have been few and sporadic, and in others their supervention adds materially to an already high dysenteric incidence. (3) That the occurrence of such epidemics is not easy to explain; sometimes local external conditions would seem to favour them, whilst often they are only explicable on the hypothesis of varying infectivity. (4) That undoubtedly dysentery is infective, *i.e.*, communicable, and the chances of such communicability are enhanced by the liability of the disease to recur. (5) That in view of the fact that so many asylums are comparatively exempt from dysentery, it is impossible to assert that such conditions as overcrowding or defective sanitation can *per se* determine its occurrence, however much they may conduce to its persistence, once it has gained an entrance. The same reasoning applies to the assumed special vulnerability of chronically insane and demented subjects, with degraded habits, as a sufficient ground for the exceptional prevalence of dysentery in asylums. They may furnish appropriate soil for the virus, the introduction of which into the asylum must be postulated, as also must probably be other essential factors, for otherwise it would be difficult to account for the immunity apparently enjoyed by precisely similar subjects in many similar institutions. (6) On the other hand, granted such conditions, that the insane are more prone to infection is proved by the comparative rarity with which the disease attacks the attendant or medical staff, in marked contrast to other infective diseases. (7) That the appearance of dysentery in many newly opened asylums can hardly be ascribed to imperfect hygiene, but is most reasonably accounted for by the fact that such asylums invariably receive chronic cases from other asylums where dysentery may have been prevalent.—*Sixty-fourth Report of the Commissioners in Lunacy*, p. 44.

the forefront, and there is every probability that it often accounts for outbreaks for which no other explanation suffices. It has been satisfactorily proved to account for outbreaks of enteric fever and of diphtheria, and there can be no reason why it is not equally applicable to dysentery. But it must not be pressed too far, to the exclusion of the possible operation of other agencies which may less directly account for the dissemination of the disease, and thus lead to neglect of wise preventive measures. The circumstances in which cases of this particular infective disease are now mainly met with are such as to afford unique opportunities for its study, for it is confined within comparatively small and isolated communities, to which it must have been imported from outside, and within which its diffusion can be observed in every detail. It is gratifying that bacteriologists are working in this field, although so far, I believe, they have not succeeded in isolating the specific dysenteric organism, or, at any rate, unanimously agreeing as to its identity. Nor is this surprising, since the search for it amidst the luxuriant flora of the human intestine must be a most difficult task. Of the intricate nature of this research we have an excellent instance in the description of his work on this subject furnished by Dr. McKinley Reid to the last number of the *Journal of Mental Science*. There can be little doubt that ultimate agreement will be obtained and means thus afforded for more effective control of a preventable disease, and its eventual removal from the asylums of this country.

Dr. ROBERT ARMSTRONG-JONES said he desired to offer his tribute to Dr. Coupland for his most instructive and able summary of this question. He, the speaker, considered the prevalence of asylum dysentery to be a reproach to asylum administration. He had always taken that view. Dr. Bolton (under whose administration the present paper had been prepared) was formerly on the staff at Claybury, and he knew the precautions taken there. Dr. Coupland had covered much of the ground in regard to dysentery, but he had not referred to those sudden, almost fulminating cases, which sometimes occurred. In those cases the patient was perhaps perfectly well one day, and the next he was quite collapsed, with a temperature of 105° , but with no diarrhoea, and nothing revealed by physical examination indicating dysentery, yet the

next day or so the patient died, again without any diarrhoea or dysentery having been present, but at the *post-mortem* examination the whole region of the large intestine in the neighbourhood of the ileo-cæcal valve was found to be dysenteric, with the appearance of considerable false membrane, almost diphtheritic in character, showing that although there were no clinical symptoms observable, there was yet very decided pathological evidence of dysentery in these cases. With regard to the other point referred to by Dr. Coupland, he mentioned the nature of the soil upon which the asylum stood as having probably something to do with it. At Claybury there was a heavy stiff clay, but the buildings were erected on the top of a hill, which, theoretically, owing to facilities for drainage, was a healthy site; and in support of this may be mentioned the fact that their tuberculosis death-rate was smaller than that of most of the other London asylums. Very great care was taken to discover tuberculosis. He had read the contributions of Dr. Menzies upon the subject, and had tried to follow him in regard to the examination for tuberculosis cases. As to the relation of dysentery to sewerage, in the early days of Claybury Asylum all the sewage drainage was put upon the farm, and that might have had some causal connection with the outbreak of dysentery. Some thought it had, and the Asylums Committee decided to cut off the sewage from the farm and discharge it into the local authority's main sewer, but this did not stop the disease. They were very careful at Claybury in the treatment of this condition, and his own plan was, if a case of diarrhoea occurred in the asylum, and the condition on the second day had not yielded to treatment, that case would be isolated from the other patients. On the other hand, if the first motion was found to contain blood and mucus, isolation was carried out at once. Very careful isolation in that way had enabled them to keep dysentery under. A detached hospital in an asylum was not usually a large place, so that a large epidemic could not be treated with isolation. At Claybury there were only six beds on the male side, though there were thirty-two beds on the female side for isolation purposes. The patients from the female side were brought back into the main asylum when well, and, if possible, received into one block. There were three floors in this block—the top floor for the more able-bodied, the middle

for those less able-bodied, and the ground-floor for the infirm. The patients as a general rule were kept for a year in that block before being permitted to mix with the others. He would emphasise the rebuke implied upon asylum administration by the occurrence of dysentery. He was very glad that this had been felt by those in official authority by making it notifiable, and by calling the disease dysentery, and not colitis, which would be less of a reproach probably. The Lunacy Commissioners were to be congratulated on dealing with the question as they had. The interest the Commissioners had shown concerning cases of tuberculosis and dysentery could not but be helpful. He felt grateful personally for the tables which Dr. Coupland had prepared and presented to members, and he thought they would be of great service. Though it would be an expensive matter, he hoped the tables presented that afternoon would be published in the Association's journal, as the matter could then be studied by some 700 members, instead of only those who attended the meeting. In conclusion, he might state that he regarded dysentery as distinctly infectious.

Dr. BOLTON (Wakefield Asylum) also desired to thank Dr. Coupland for his interesting and instructive remarks. He would make some remarks which were, to some extent, complementary to Dr. Gettings' paper, which set forth the work which he had done. Three years ago when he, the speaker, went to Wakefield Asylum, he thought he would have very little trouble from dysentery, as the report for 1909 said there were very few cases, but before he had been there a couple of months there were six cases, five of which were fatal. It had not been the custom there to open the intestines and examine them from end to end; hence he was not surprised that some cases of the disease had been overlooked, and that dysentery had been regarded as less common there than the facts warranted. He soon obtained the services of a competent bacteriological worker so that the cases could be investigated, or rather, in view of Dr. Mott's work, re-investigated. His pathologist left after eighteen months, and then Dr. Gettings came on, and this contribution now submitted was the first result of his work. Three years ago he, Dr. Bolton, was going through the old records of the Institution, when he found, among other documents, a manuscript copy of the reports of the director from the opening of the asylum. It showed that dysentery had

been there almost from the commencement, and that as long as ninety years ago the disease was regarded as infectious ; and not only so, but it killed the housekeeper and the son of the second director of the institution. Measures were taken to disinfect the clothing of the patients, showing that even so long ago they were almost up to date in their methods. Dr. Gettings had shown that dysentery was endemic from the commencement, and that epidemics occurred in 1828, 1849, 1866, 1881, 1900, and finally, there was the epidemic of 1911. He was personally well aware that dysentery was infectious a few years before it was declared to be so in 1900. When he was at Rainhill Asylum he was told by Dr. Wigglesworth that it was an infectious disease, and it had for years been treated there as typhoid. Yet, though he knew that, he himself acquired the disease from a fulminating case such as Dr. Armstrong-Jones referred to. He had started his tea one afternoon in the medical officer's room, when he was sent for to go and see a patient who had suddenly collapsed, a woman. After seeing her he gave instructions for the usual treatment, and went back to finish his tea without first washing his hands. Five days later he had an unpleasant attack of dysentery. At Claybury, about 1900-1903, it was not the fashion to believe that sane persons could catch the disease ! He was sure the carriers disseminated the disease, and later on, in 1903-1904, at Hellingly Asylum, he tested the stools of some hundreds of female cases, which occupied several months. Eighteen or twenty of those women showed shreds of mucus in the motions, which for some days had apparently been normal. For some months after that there were no other cases on that side of the Institution, though there were on the male side, where similar precautions had not been taken. On going to Rainhill Asylum he had the opportunity of carrying out the same method on the male side of the chronic asylum, where there were 600 patients. There were some forty cases at the time, and he got together all the infective cases, which, during the quiet period, showed a small shred lying on a portion of the stool. For more than two years after that there was no further case on the male side, though on the female side cases were continually occurring. He was careful about the admissions, and he believed he had got rid of the carriers. Permanent isolation was essential. All sorts of methods had been tried ; in

Wakefield Asylum the efforts extended over ninety-five years, and when these efforts coincided with a decline in the rate, the decline was attributed to the method ; whereas, if a remedy were tried during an increase of cases, it was said the remedy was useless. In 1825 overcrowding was attributed as the cause. In 1833 square apertures were cut into the rooms to improve the ventilation. In 1871 the main drainage and the ventilation were blamed, and they were altered, but the disease was not got rid of. Sewer-gas was also regarded as the cause, and some of the larger ventilating shafts were closed up. In 1900 there was another violent epidemic, and afterwards Dr. Lewis instituted the giving of white mixture. The epidemic disappeared, and it was considered to have vanished because the white mixture was given. One might equally say that, twenty-five years ago, the epidemic was got rid of by closing the ventilating shafts. With regard to the 1900 Wakefield epidemic, there were fifty cases each year, and after the use of the white mixture they went down to eleven, eight, three, six, one, and finally in 1908, there were said to be none. In 1909 there was one ; in 1910, eleven ; in 1911, thirty-five ; in 1912, seventy-eight ; and during the present year there had been seventy-four cases so far, and there probably would be some more before the year was out. Perhaps some slackness had been induced before the 1911 epidemic by regarding the cases as rare ; some of the cases were given the benefit of the doubt and said to have died or suffered from piles. Dr. Armstrong-Jones was adopting at Claybury Asylum the identical method which was being carried out at Wakefield ; and he, Dr. Bolton, proposed to keep the cases in isolation a long time, if not permanently. The *Journal of Mental Science* for April last contained a review of his, Dr. Bolton's, reports. He did not know who wrote it, but it stated that he, Dr. Bolton, did not believe in the white mixture which had been used. He did not believe in it, either in white or black mixture, except in so far as it cleared out the bowels and avoided intestinal accretions. The reviewer evidently thought the case for white mixture proved, as "colitis is colitis" and cannot be concealed. In reply to this, he might say that Dr. Ellis minimised the epidemic of 1829 as much as possible, for, in his report, he said : "A few fatal cases of dysentery occurred in the early part of the year, but for some time past the house has been free from that com-

plaint." Dr. Gettings had gone through the figures for that year, and found that from March to July alone, out of nineteen *post-mortems* fifteen had died of dysentery ; so it seemed that too much reliance could not be placed on what was said by the staff or directors of the institution. He, the speaker, wished to specially draw attention to the great importance of a systematic and thorough examination of the stools, so as to detect the carriers as far as possible. As it was unpleasant work, it was impossible to get officers in large asylums to do it unless they were enthusiastic. He hoped that before long there would be available a bacteriological method which would enable diagnosis of this condition to be made with the same certainty as in syphilis or typhoid. Probably a great deal of work was needed to bring this about, but under the stimulus of Dr. Gettings' paper he hoped others would work at the matter, so that when another severe outbreak was due to occur, it could be either banished or very greatly minimised.

Dr. GETTINGS, in reply, said Dr. Bolton had referred to the epidemic years in Wakefield Asylum. In going over the records, he found that 1825 was a very hot summer, whereas Dr. Coupland considered that epidemics of dysentery arose in wet and cold years. It was interesting to note that epidemics of dysentery used to arise in Wakefield Asylum at the same time as in the country generally. Yet the asylum was a little self-contained community and no fresh introduction of the disease could be traced as having taken place. On looking at Dr. Coupland's excellent chart, it would be found that in a number of cases the waves were at the beginning and end of the period shown, showing that these epidemic years of dysentery coincided with those at Wakefield Asylum. Dr. Armstrong-Jones had referred to the prevalence of this disease as a reproach to asylums. His old teacher, Sir Patrick Manson, was very severely down on it too ; he used to say dysentery was a disgrace to English asylums. Now, when he, the speaker, came to take up asylum work, he began to consider it was not such a reproach as it was thought to be, because after every effort at disinfection and scrupulous cleanliness, as well as isolation, had been taken, the disease still went on, and it was no doubt due to the carrier, who gave no evidence of having the power of communicating the disease. The difficulty was

not in the finding of the causal organism in the faeces of the ordinary case ; in fact his laboratory " boy " did it regularly. The difficulty was that the carrier gave no signs. A woman patient had dysentery recently, of which she died in three weeks ; and when he made the *post-mortem*, he found she must have had it three years, during which time she gave no signs, but went about her work in the ordinary way. If a pathological test could be established for these cases, that would settle the whole question ; for when once the carriers were eliminated, epidemics would be abolished in a few years ; certainly the disease would no longer be a scourge.

(¹) *Journ. Ment. Sci.*, October, 1913, p. 605.

The Clinical Value and Significance of Leucocytosis in Mental Disease(¹). By D. J. JACKSON, B.A., M.D., Ch.B., Assistant Medical Officer, Cardiff City Mental Hospital, late Assistant Medical Officer, County Asylum, Chester.

THE problem of leucocytosis has been the subject of much discussion in recent years. Amongst the earlier workers on the subject Virchow stands prominent, and he first gave the name of leucocytosis to a temporary increase in the number of leucocytes in the blood, this occurring both in physiological and pathological conditions. During the past twenty years special attention has been paid to this phenomenon, bringing to light some very important information. Amongst later workers Metchnikoff has done more to enlighten us as to the problem than any other worker. To briefly recapitulate his doctrine. The leucocytes protect the organism against harmful germs by catching them up in their pseudopods, by investing them, and thus robbing them of the possibility of exerting their deleterious action externally. The termination of an infective process would therefore depend alone on whether leucocytes possessing this function are present in the blood in sufficient numbers to overcome the invasion of the germs. The doctrine of Metchnikoff has been modified and also extended by other workers, notably Denys, Löwy, and Richter, who have proved that the value of the leucocytes does not depend on their pseudopods, but that their chemical products yield the strongest