

abandoned. Facts are wanted, not opinions. The one fact that is clearly established, is that cholera excreta are only dangerous when putrefaction has commenced. The most efficient of all agents in the development and multiplication of euglenia will undoubtedly be met in water sewerage in hot climates. The real destroyer will be the system of dry sewage that immediately and permanently prevents putrefaction."

I need hardly remind the profession in India that Dr. Mouat is not the only Medical Officer in this country who has adopted ideas such as those above quoted. Of course, Drs. D. Cunningham and Lewis are not responsible for the vagaries of other people; nevertheless, these notions, although misapplied, were started by their investigations regarding animalculæ and cholera stools. It may further be remarked that expressions such as those I have referred to, although harmless among scientific men, are undoubtedly detrimental to the cause of science, because they expose members of the profession,—especially those holding high positions in the service—to ridicule, rendering it possible for officers whose duty it is to consult them in professional matters, to discard their views, if unpalatable, arguing that, having come to indefensible conclusions in one branch of their profession, their opinions are untenable, in another.

As the subject of animalculæ was to form a part of this report on the microscopical objects found in cholera stools, it would have been more satisfactory had Dr. Lewis given us some definite ideas regarding the "still" forms of animalculæ which he describes. He remarks, at page 27 of his report, that in fresh cholera stools "frequently a globule has been observed for some time, and finally disposed of as being merely an oil one, when suddenly it is seen to protrude a portion of its substance, retract it, and while so doing another protrusion becomes visible at some other portion of the little mass, and then, perhaps, it will shift its position, exactly after the manner of an amœba;" they are "frequently hyaline in a fresh stool, but generally granular; no trace of nucleus or contractile vesicle can be observed; sometimes they are very numerous, but when there are other corpuscles in the field which act in a somewhat similar manner, it is impossible to say which class they belong to, unless, indeed, they are moving across the field like an ordinary amœba, and do not merely content themselves with protruding portions of their substance into the surrounding fluid." In addition to these cells Dr. Lewis describes the "peculiar corpuscles" of cholera stools, first noticed by Dr. Parkes, and he agrees with Dr. Parkes in considering that "it is in the highest degree probable they owe their origin to effused blood-plasma, which assumes with great rapidity a low, ill-defined, and non-progressive organization." This passage is taken from Dr. Parkes' paper published in the *London Journal of Medicine*, 1849, and we may best understand its meaning by quoting further from this same paper. Dr. Parkes writes,—"it appears to me the most simple, and the most likely view is to consider all the flocculent matter of the true cholera stool, cells, dark yellow granules, fibres, flakes, and amorphous matter, to be but modifications of the same substance, *viz.*, fibrine. The granules appear to form, by aggregation, little masses, round which a cell wall forms, in the way which, as pointed out by Henle, occurs in certain inflammatory exudations, or perhaps cells may form from liquid plasma, as in the low organization taking place in the follicular deposit of typhoid fever." I must for the present turn, however, to Dr. Lewis' report for a description of these 'peculiar cholera corpuscles.' He writes at page 34,—their chief characteristic is that they "*exhibit movements somewhat like the movements associated with the amœba.*" (This feature does not seem to have attracted Dr. Parkes' attention.) "A portion of the substance of the corpuscle is seen to creep out insensibly from the mass, and as instantly to return: unless the eye is carefully fixed on the body, and is already a more or less educated eye, the phenomenon is not detected, and the observer enters it as disintegrated epithelium in his note book." It seems to me hardly possible that such a mistake as this could occur if the cells depicted in Plate xvi of Dr. Lewis' report represent these "peculiar cholera corpuscles," for they are about as unlike the intestinal epithelium as any form of cell well could be, nor does their clear outline give one the remotest idea of their being "disintegrated." I would further remark, that, although I have carefully read over Dr. Lewis' report, I cannot find a single allusion in it to the presence of the intestinal gland cells, as being one of the constituents of the microscopical objects to be found in cholera evacuations.

(To be continued.)

1.—*The Drainage of Calcutta.* By W. CLARK, Member, Institute of Civil Engineers, &c., &c.

2.—*Twelfth Report of the Medical Officer of the Privy Council.*

3.—*Report on Measures adopted for Sanitary Improvements in India from June 1869 to June 1870.*

"CONSTANT READERS" of this journal are no strangers to the subject of the water-supply, drainage, and conservancy of Calcutta. Our January number contained a lengthy notice of the working and defects of the system, and Mr. Clark, on whose shoulders rests largely the credit or obloquy of success or failure, now comes forward with a concise, clear, and, to most minds, convincing exposition of the whole question which was read before the Bengal Social Science Congress on the 2nd of February, 1871, and now reaches us as a pamphlet of 20 pages. In this paper Mr. Clark explains clearly what objects the Calcutta drainage works are designed to fulfil, and by what means these objects are meant to be accomplished.

The objects are:—1, to remove sub-soil water; 2, the drainage of houses; and 3, rain water. These three objects are to be accomplished by one contrivance, namely, a system of drains in which every thing capable of solution and suspension is to be mechanically conveyed to a distance by means of water. The four requisites for this arrangement are shown to be,—1st, a sufficiency of water; 2nd, a sufficient fall; 3rd, a complete system of drains; and 4th, modes of providing for the entrance of the material—water, sewage, &c., into the drains. The question of water is placed beyond doubt. There is the rain water, the Pulta water, and the Hooghly water, which are ample for all purposes of conveyance and flushing. The natural eastward fall of the Calcutta level gives sufficient mechanical facility for the water and its burden, aided by the pumping arrangements at Palmer's bridge which give the material a new lift. As regards the drains—"one-half of the more expensive works has been already completed, while the outfall works, with the exception of one pumping engine, still required, are finished." In fact, what is wanted is the mere detail or filling in of the outline which already, wholly in design, and in great part in actual realization, exists. As to the entrance arrangements,—all the soil and storm water, and the house drainage partly, can now enter the drains wherever the net-work spreads, but there is still wanting the water closet system to provide for the immediate entrance and removal of human excrement. This is the great defect of the system, but it is a defect of incompleteness—remediable by time and outlay. There is also a defect at the other end, a defect of arrangements for utilizing the valuable material which is now being deposited in the open canal at the outfall and silting it up. This is also capable of remedy: the land is there, and it merely wants appliances for the application of the sewage to it. Dr. Hewlett, Health Officer of Bombay, occupied a recent furlough (August 1868 to November 1869,) in studying the conservancy arrangements of 30 English and Scotch towns. He has placed the result of his observations in the form of a report which is published by the India Office. His conclusion is,—"As far as I can see, water carriage appears to be, under existing circumstances, the most convenient vehicle for the removal of all refuse from large towns in England. The system has not been tried in India, and it remains to be seen whether it is one best suited to the local habits of the people, and whether a sufficient supply of water can be provided to carry the sewage to its outfall before decomposition has set in." Dr. Hewlett also remarks,—"In Manchester, Liverpool and Birmingham, &c., only a portion of the houses are fitted with water closets. In the remainder, and in Manchester (where the Corporation discourages their use,) in the larger portion, there are middensteads or receptacles for both night soil and ashes, which also are in my opinion doubly objectionable, as they have to be periodically cleaned at great expense; and as they necessarily entail the accumulation of night soil in the vicinity of human habitations, they are sources of danger, however carefully constructed or ventilated they may be." The last extract shows what Calcutta conservancy is, and the first what it ought to be. It is a question of mechanical removal *versus* scavenging. The former entails expense in construction, but gives the facility of immediate and continuous removal of nuisance, *irrespective of human agency.* The latter as a continuous expense, and an uncertain element. The midden system must involve scavenging, and at present the Calcutta system is a compound one—involving a combination of a tub, midden and drainage systems. All other methods except a complete water closet, and drainage system, are mere modi-

fications of scavenging, with all its drawbacks of necessary offence, middens and an enormous establishment for deportation which must be large in proportion to the size of the community, and frequent in proportion to the heat of the climate. Dry earth removes offence, but adds to cost, because it involves double carriage and increased bulk, besides arrangements for preparation, without which the system is defective.

Dr. Buchanan and Mr. J. Netten Radcliffe have, at the instance of the medical officer to the Privy Council, recently described the various contrivances which may be considered as the alternatives of a properly arranged water sewage system; these are,—1, the midden system; 2, the pail or trough system; 3, the earth system; and 4, the water system. These stand in the following order in the estimation of the reporters: 1 water, 2 earth, 3 midden, 4 pail; but one thing is clear from the report in question, namely, that the removal—if removal there must be—must be frequent, and the more frequent the better. Another point is equally clear, namely, that the lower order of the genus homo is a very unclean animal and must have an agency or mechanism to supply the existence of the dormant or absent instinct of cleanliness. The advantage of a mechanical over a human or animal agency is very obvious. There is, however, one argument in favour of earth and similar systems at home, which is wanting here, namely, that there is a demand for such manure, the price obtained for which pays for the expense of carriage, &c. The one great truth impressed upon the mind by a perusal of the papers above enumerated, is, that in the matter of town conservancy as little as possible must be left to the will of the individual, and as much as possible placed beyond his control. Beyond this comes the question of agency, and the superiority of water agency, because easy of application, efficient, continuous, and placed beyond the option of individuals, stands out clear and positive. Dr. Hewlett has gone the right way to work in studying this question, and we may hope that scientific conservancy will in time supplant scavenging in Bombay, as it has done in a great measure in Calcutta. Dr. Hewlett does not, by the way, seem to know much of what has been done here, and we commend Mr. Clark's pamphlet to his notice. The practice of systematic local inquiry by a competent man on one sanitary subject, is worthy of imitation in India. The various native conservancy usages, prejudices and contrivances have never been properly studied or described. There is a vague belief that natives resort to the fields invariably, and that pigs and cattle devour the excrement; but there do exist practices and contrivances in villages, towns and large native houses; and if sanitation and correct conservancy are ever to visit the mofussil, the existing usages should be studied with a view to their modification and improvement. Duties of this sort would be best entrusted to a competent native agency; and on this and cognate subjects, which require to be systematically and practically studied before any thing can be done to ameliorate, local investigations are a necessity. The extracts given in our last number regarding the state of the Pooree lodging-houses are the very best illustrations we could give of the method and need of such inquiries, and it will be noted that this investigation, on which an important measure partly hinges, was conducted by a Civil Surgeon, aided by a Native Doctor.

Correspondence.

TO THE EDITOR OF THE "INDIAN MEDICAL GAZETTE."

MY DEAR SIR,—I shall feel much obliged by your kindly inserting in the first number of the *Indian Medical Gazette*, the enclosed notice regarding the Bengal Branch of the "Royal Irish Medical Benevolent Fund Society," of which Surgeon J. A. Purefoy Colles and I are Joint Honorary Secretaries.

Believe me, &c.,

T. M. BLECKLEY, A.M., M.D., L.L.B., *Staff Surgeon.*

The Shrubbery, Simla, 24th February, 1871.

ROYAL IRISH BENEVOLENT FUND SOCIETY.

It is proposed to establish in the Bengal Presidency a Branch of the Royal Irish Medical Benevolent Fund Society. The object of the Society is to relieve cases of distress among medical men, and their widows and orphans, in Ireland. It is supported by subscriptions from members of the Profession, raised by means of local "Branches," of which the Society has now 36—34 in Ireland; one in Bombay, and one (founded last year) in Madras. In the year

1869-70, the subscriptions to the Bombay Branch amounted to Rs. 777; and those of the recently founded Madras Branch to Rs. 210.

The annual sum which can be devoted to relieving cases of distress falls very far short of the claims upon it, and a great many applications for relief are unavoidably set aside from want of funds to meet them.

As the Annual Meeting of the Society is held in Dublin in June, contributions from India should be sent home not later than the first Mail in April.

Subscriptions to the proposed Bengal Branch will be thankfully received by the Honorary Secretaries, viz.:—

Staff Surgeon T. M. Bleckley, A.M., M.D., L.L.B., Simla, and Surgeon J. A. Purefoy Colles, M.D., 4th Sikh Infantry, Edwardesabad.

The following subscriptions have been already promised:—

Staff Surgeon T. M. Bleckley, M.D.	Rs. 32
Surgeon J. A. P. Colles, M.D., 4th Sikh Infantry	32
" G. C. Chesnaye, 3rd Bengal Cavalry	20*
" J. H. Condon, Civil Surgeon, Cawnpore	32
" T. Murphy, M.D., Royal Artillery	10
Assistant Surgeon A. Deane	16
" R. G. Segrave	10

* Besides Rs. 120 in arrear from 1859 to 1870. See *Indian Medical Gazette*, September 1870.

TO THE EDITOR OF THE "INDIAN MEDICAL GAZETTE."

"SCARLATINA IN THE HILLS." (QUERY, "ROTHELN.")

SIR,—No one reading Dr. Maunsell's case of "Scarlatina in the Hills" in your December number, and Dr. Murchison's clinical lecture on a case of "Rotheln," or German measles, in the *Lancet* for October 29th, 1870, can fail to recognise that both accounts are histories of one and the same disease.

The same observation applies to Dr. Garden's case of "Erythema Scarlatiniforme" in the number of the *Gazette* for July 1870.

Two such cases came under my cognizance while at Dhurmsala, and though I was puzzled with the affection at the time, and recognised Dr. Garden's description, it was not till I read Dr. Murchison's lecture that I knew how to name the disease. It is unnecessary to enter into the points of resemblance. One of my cases occurred in September 1869 in a young lady under 20, who herself thought she had simply a severe cold, but did not know what to make of the eruption, which closely resembled that of scarlet fever; another (married) lady was ill, at the same time, of the affection, and it is interesting to note that in her case, her confinement which took place immediately, was followed by "swelled leg." Both cases were well in little more than a fortnight.

I am, Sir, your obedient servant,

W. P. DICKSON.

[We have received two private communications from Medical Officers, who, from personal experience, have concluded that the so-called scarlatina is a form of measles. It were well if this question could be set at rest by accurate descriptions of cases seen.—*Eds., I. M. G.*]

Medical News.

Deaths in the Central Provinces.—The death-rate of December was, per 1,000,—cholera 0.0, small-pox 0.0, fevers 1.3, bowel complaints 0.1, injuries 0.02, all other causes 0.2; total 1.7. There were 27 deaths from suicide (12 males and 15 females); 9 from wounds (5 males and 4 females); 90 from accident (44 males and 46 females); 49 from snake-bite and wild animals (41 males and 8 females); population 6,732,447.

Deaths in the North-Western Provinces.—The death-rate for December was, per 1,000,—cholera .01, small-pox .03, fevers 1.58, bowel complaints .23, injuries .02, all other causes .16; total 2.06. There were 71 deaths from suicide (33 males and 38 females); 105 from wounds (67 males and 38 females); 354 from accident (210 males and 144 females); and 88 from snake-bite and wild animals (42 males and 46 females); population about 30 millions.