

## GENTLEMEN,

I am directed by the Hon'ble the Governor-General and Council, to acknowledge their receipt of your address of the 29th ultimo, and to acquaint you that they have been pleased to appoint Mr. Thomas Gillies, Secretary to the Hospital Board.

Council Chamber,  
Secret. & Mly. Dept.  
3rd June, 1786.

## NOTICES TO CORRESPONDENTS.

Communications.—ARTHUR NEVE, ESQ., L.R.C.S. & P. EDIN.; Surgeon-Major J. L. NOTTER, A.M.D.; Surgeon P. J. FREYER, M.D., Civil Surgeon, Moradabad; Surgeon T. R. MACDONALD, M.B., Indian Medical Service; Assistant-Surgeon NIL RUTTUN BANNERJEE, Etawah; Surgeon-General J. M. CUNNINGHAM, M.D.; Hospital Assistant HERA-LALL BEHARI LALL; Hospital Assistant P. JOB, Koongal; Surgeon-Major C. S. WILLS, C.B., A.M.D.; Surgeon J. C. LUCAS, F.R.C.S., Bombay Medical Service; Assistant-Surgeon NOBO GOPAL MITTER, Arrah; Surgeon E. MULVANY, Civil Surgeon, Sultanpore; Assistant Apothecary VERGHESE; Assistant-Surgeon HOOSMAN KHAN; E. O. BISHOP, ESQ., M.R.C.S.; Surgeon-Major R. C. SANDERS, M.D., F.R.C.S., Civil Surgeon, Bareilly; HEALTH OFFICERS, CALCUTTA, Madras, and BOMBAY.

## ACKNOWLEDGMENTS.

*The Lancet*, Nos. XXII. to XXVI. of Vol. II. of 1882; *The British Medical Journal*, Nos. 1144 to 1148; *The Medical Times and Gazette*, Nos. 1692 to 1696; *The Medical Press and Circular*, Nos. 2276 to 2279; *The Philadelphia Medical Times*, Nos. 391-392; *The Canadian Medical and Surgical Journal*, November; *The New York Medical Journal*, December; *On Guard*, No. VIII. Vol. X.; *The Therapeutic Gazette*, No. 10; *Apotheker-Zeitung*, Vol. III. No. 19.

A Guide to Nursing Mothers, by Hoosman Khan, 1st class Hospital Assistant.

Report of the Administration of the Stamp Department, Punjab, 1881-82.

Report of the Administration of the Registration Department, Punjab, 1881-82.

Report of the Administration of Bengal, 1881-82.

Proceedings of the N. W. Provinces and Oudh Branch of the British Medical Association, Nos. 6 and 7.

Annual Report of Dispensaries, Punjab, 1881.

Report of Sanitary Administration, Punjab, 1881.

License Tax Report, Punjab, 1881-82.

The Laws of Life and their relation to diseases of the skin. By J. L. MILTON.

Report of Popular Education, Punjab, 1881-82.

Rules of the Eden Sanitarium, Darjeeling.

## The Indian Medical Gazette.

FEBRUARY, 1883.

## PETTENKOFER'S LAST UTTERANCE ON CHOLERA.

ANY deliverance from Professor M. v. PETTENKOFER, of Munich, on the subject of cholera, is entitled to respect, but when he makes his views known for the last time, and bequeaths to his successors the task of verifying and elaborating them, the pathos of the occasion increases the attention and interest which a statement of the professor's matured opinions on so momentous a topic would otherwise command. The particular phase of cholera inquiry with which PETTENKOFER deals in the paper under notice is "the parasitic theory of the causation of choleraic disease." The paper was read before the Medical Soci-

ty of Munich in April, 1880, shortly after the issue of the report of the Cholera Commission for the German Empire, of which he was chairman, and in which he was associated with HIRSCH, BÖGER, GÜNTHER, VOLZ, and MEHLHAUSEN; this commission was organized in 1873, and the cholera epidemic of 1873-74 furnished pabulum for its investigations and discussions. PETTENKOFER writes with the facts elicited by the commission fresh in his mind; and the labour and thought of 26 years—during which he has watched and studied the phenomena of cholera throughout the world, and sought to elaborate a satisfactory explanation of its mysterious and erratic behaviour, are thus brought into relation with facts investigated and weighed by himself and his distinguished colleagues. We are indebted to Professor DE CHAUMONT for an excellent translation of PETTENKOFER's paper, which he has embodied in the sanitary survey prepared for the Report of the Army Medical Department. This translation has been published in a recent number of the *Sanitary Record*, and we shall endeavour here to give a sketch of its salient features.

PETTENKOFER's views on the subject of cholera causation are well known, and have frequently been presented and commented upon in this journal. Stated briefly, he holds that certain local and seasonal conditions and individual predispositions are necessary for the effective action of the cholera infection. This doctrine may now be said to have been firmly established, not only as regards cholera but also for all other infectious diseases. If no such conditions existed, it would be difficult to conceive how any human being could escape infection in any epidemic, unless the perishable nature of contagia and the difficulty of their transmission afford sufficient explanation of the fact of immunity of the majority of which almost every epidemic offers illustration. It is mainly due to PETTENKOFER's consistent and powerful advocacy of the importance in propagating contagious diseases of conditions outside of the host or fomes of the contagium that the view in question has gained such universal acceptance. The influence of PETTENKOFER's doctrines is very apparent in the report of the German Commission. Cholera is placed among infectious diseases, but contagia are distinguished according as they are *entogenous*—propagated *in the body*, or *ectogenous*—propagated *outside of the body*. These are convenient and expressive terms, and the cholera conta-

gium is held to belong to the latter category. Either, as stated by HIRSCH, the poison is elaborated and multiplied in the diseased human organism, but requires for its maturation a further elaboration outside of the body, or it is altogether developed and multiplied outside of the human body, and the influence of human agency in its propagation is limited to its conveyance. Thus may be explained on the one hand the indisputable fact of dissemination through the instrumentality of man, and on the other the unequal incidence of the disease, its dying out in one place or at one time and flourishing in another place or at a different season. This idea is illustrated in DR. DE CHAUMONT's article by several examples drawn from the report of the German Commission. Granting the general truth of the localist or topical view of cholera development, the next question that arises is—what are the local conditions which permit or favour this development? It is obvious that if we could arrive at a knowledge of these conditions, the development of the cholera germ or poison, if such exists, could be thwarted, and in this view the question assumes a practical shape of the utmost consequence. PETTENKOFER believes that the parasitic theory is the only one likely to lead to a solution of the question. He inclines to the belief that the cholera germ is a fungus belonging to the *Schizomycetes*, but seeing that their presence is universal, search must be made for a special fungus or for special conditions which confer on an innocent fungus virulent or lethal properties. "As regards the cholera-germ, we must find out the local substratum or nidus and its nutriment or host, and these we are likely to discover long before the germ itself, just as sugar was recognised in grape-must and beer wort, as the necessary substratum for alcoholic fermentation long before the part played by the ferment fungus was understood". This view is enforced by various illustrations and reasons, and the case is finally summed up in the following passage. After reproducing his early hypotheses he says :

"It may be sufficient to point out that from that time to this I have never found myself in opposition to the parasitic theory; I have striven solely and always against the theory of simple contagion which, in my opinion, is erroneous. I have also endeavoured to obtain for local influences their proper position in epidemiological views, and also to hold out goals of the richest promise to experimental fungology in which I cannot

myself take an active part. When I consider the results of the work of the Cholera Commission in the light of the prevailing fungus theory of the present day, I might hold it as most probable, seeing that, as I have before said, cholera is no putrefactive poisoning, that intercourse with places in which the disease is endemic or epidemic spreads an organism (*x*) which causes cholera in some way unknown to us at present. The poison, however, when brought into other localities without losing its poisonous property, can only propagate itself when it finds in that place a suitable substratum (or nidus) (*y*), which has its origin in the ground, and serves, so to speak, as nutriment or a host, and which is either already in man himself, or, as seems to be more likely, is in the ground, and from thence attaches itself to dwellings situated on the ground, or to objects to be found therein. Again in cases in which outbreaks of cholera appear to rise without the intervention of the soil, as for example on board ship, the simultaneous presence of the germ (*x*) and the substratum (*y*) arising from the land, must be admitted."

This may be thought to be speculative in a very high degree, but the passage indicates well in what direction thought in this matter is tending. There is a strong feeling that (*y*) has something to do with filth if it is not filth, and the following passage from the report of the Commission deserves to be printed in letters of gold. It is peculiarly applicable to the circumstances of Calcutta at the present time. "Of all the measures which may be applied to the prevention and combating of cholera, those take the first place which have for their aim the improvement of general sanitary conditions; all specific measures against cholera will prove unavailing unless we pay the strictest attention in inhabited places to the purifying of the soil from organic and easily putrefying refuse, to the drainage of the soil, to the constant flushing of the sewers, to the frequent emptying of cesspits, the complete doing away with pervious cesspits" (kutcha tanks), "the careful inspection of dwellings, and closing those that are really hurtful, the provision of pure water both for drinking and other domestic purposes, and the like."

In our ignorance of what either *x* or *y*—the germ or the substratum—is, the gospel of cleanliness is our only refuge, and it is comforting to reflect that in proclaiming and practising it we are in all probability adopting the most effectual course to cripple or extirpate both *x* and *y*.