whilst the crania of Romano-British skeletons frequently exhibit all the signs of healthy senility. Yet the Anglo-Saxons were family-men, who were interred with their wives, women of their own stock, and not prizes of war. It is known that native Saxon women were brought over in the fleets of Cerdic, if not with the army of Hengist and Horsa. Professor Rolleston discovered that the ugly type of female crania found in association with male Saxon skeletons corresponded entirely with these latter, and were quite distinct from the skulls of Romano-British women, which showed the characters of prolonged civilisation, and interbreeding with what would be called a handsome stock. Thus, through the observance of certain conditions which maintain the physical and social excellence of a nation, the Anglo-Saxons developed into a great people, notwithstanding habits of dissipation and an indifference to concrete beauty. It must be remembered that Professor Rolleston treats these questions in an essentially scientific spirit, never rushing into picturesque ideals of life in the early middle ages, based rather upon romantic traditions than on anthropological research. Scientific history is a thing of the future, but its germs lie in the writings of our author, and of a few other contemporary writers; and, just as the modern historian has put Cœurs-de-Lion and cavaliers in the background, in favour of Magna Charta and the growth of representative institutions, he may, in the next century, give his first considerations to still more subtle questions which science alone can solve.

Among the best of the more or less purely medical papers in these *Addresses*, we may cite the author's "Physiology in Relation to Medicine in Modern Times," delivered before the British Medical Association at Oxford in August 1868. Its nature may be judged by all who remember the views of the author and the manner in which the subject is generally treated. No doubt those who attain professional success by social qualities alone may disagree with some of our author's conclusions; yet they are none the less true, and many flourishing family physicians have gained the confidence of the public by the exercise of a scientific instinct, the very existence of which may have never been recognised by their patients, nor even by themselves. Common sense is not necessarily unscientific in the practitioner; and it is neither common sense nor scientific to disparage that kind of scientific education which Professor Rolleston believed to be of paramount importance to the student.

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INDEX CATALOGUE OF THE LIBRARY OF THE SURGEON-GENERAL'S OFFICE, UNITED STATES ARMY. Vol. v. Washington Government Printing Office. 1884.

THE fifth volume of this *magnus opus* of Dr. BILLINGS, well maintains the international character and completeness which have marked each of the preceding volumes. When we recall to mind that one-third part of the whole mass of the world's literature belongs to medicine and allied sciences, the value of such a work as this becomes increasingly apparent. Each succeeding volume brings with it an increase in the number of its pages, and we have in the work before us fully seventy pages more than contained in the first instalment of the work. This volume, which alphabetically embraces from "Flac" to "Hearth," contains 1,055 pages, 15,555 names of authors, and refers to no less than 5,755 volumes and 12,596 pamphlets, 80,969 subject-titles of separate books and pamphlets, and 34,127 titles of articles in periodicals. The recent additions to medical periodical literature occupy eleven pages.

Few, if any, libraries cover a wider field than do the Washington Library, which this work represents, and it would be difficult to find a library which more completely represented the medical literature of the world. It has been shown, "from a comparison of the catalogue of the medical library of the Surgeon-General's Office, with the *fasciculi* of the catalogue printed by the British Museum in 1881-1882, that, on 1,140 pages, containing about 34,000 titles, exclusive of cross-references, there were the titles of 657 books, and 880 inaugural theses relating to medicine. Taking the corresponding portions of the Washington catalogue, it is found that the British Museum has 232 medical books, 372 medical theses, and 118 different editions which are not in the Washington Library; while, on the other hand, the Washington Library has 285 books, 342 theses, and 88 different editions which are not in the British Museum. There are common to both libraries 277 books and 508 theses. The two libraries are, therefore, nearly equal as regards medical books, exclusive of medical journals, transactions, and reports, in which the Washington Library is much the richer."

Few persons can form any conception of the amount of careful labour the compilation of such a complete and comprehensive work entails. Of its great value there can be no two opinions; the knowledge where to find reference to a fact is often enough of greater moment than a knowledge of the fact itself. This work will form, when completed, by far the most complete index catalogue of medical literature ever issued from the press, and one of which its author and his country may justly be proud.

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DISORDERS MISTAKEN FOR HYDROPHOBIA. By CHARLES W. DULLES, M.D. Pp. 37. Philadelphia: Collins. 1884.

IN the BRITISH MEDICAL JOURNAL, December 1st, 1883, p. 1078, we reviewed a small pamphlet by the same writer on the subject of Hydrophobia, disagreeing with the theory of fright or imagination suggested by the author.

The present essay marks a very important advance in the writer's study of the subject. He has in a small compass produced a mass of evidence proving that various disorders have been mistaken for hydrophobia, and has thus done good service in directing the attention of the profession to the dangers of swelling the list of hydrophobic cases by a false diagnosis.

He has enriched his paper by a very copious bibliography, revealing the extent of our literature upon this obscure but attractive disease. Under five divisions, namely: 1, disorders of the alimentary canal; 2, disorders of the respiratory apparatus; 3, disorders of the circulatory apparatus; 4, systemic disorders; and, 5, disorders of the nervous system; he has produced cases classed as hydrophobia, but which should in reality have been assigned to one of the foregoing categories. There cannot be a doubt that mistakes in diagnosis have been made in regard to hydrophobia, and it would be desirable, if possible, to check these returns. In Scotland, for instance, according to Dolan (*Rabies or Hydrophobia*, p. 125), there were provisionally registered, from 1855 to 1874, under the heading of Hydrophobia, the following cases, which, after investigation, were placed under their true headings; in 1855, a case of malignant pustule; five cases of snake-bite in various years; in 1860, three deaths from glanders; and in 1862, another death from the same cause. In 1871, there occurred three deaths in Glasgow, and one in Kincardineshire, which were attributed to glanders, but of which two were due to glanders and one to farcy. This is given on the authority of Mr. William Robertson, Superintendent of Statistics in Scotland.

In 1874, sixty-one deaths from hydrophobia were registered in England; and we have no doubt that, if all these cases were investigated, some of them might be expunged from that nomenclature, and transferred to another; but the inference would not be correct that, because there were some mistakes, hydrophobia therefore did not exist. Mistakes occur in the diagnosis of typhoid fever and other diseases, so that hydrophobia is not singular in this respect.

With this reserve, we can recommend Dr. DULLES's interesting pamphlet to all who are interested in the subject of hydrophobia.

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## NOTES ON BOOKS.

*Sanitation of Public Institutions*, being the Howard Prize Essay of the Statistical Society for 1883. By R. D. R. SWEETING. 8vo, pp. 97. London: Baillière. 1884.—This is a collection of the experiences and observations of John Howard on the hygienic conditions of prisons and hospitals at home and abroad, under the various heads of site, cubic space, ventilation, cleanliness, water-supply, etc., with the opinions on the same points of the best authorities of the present day, showing how he anticipated the conclusions of modern sanitary science in the most remarkable manner. The author, too, shows that many of Howard's recommendations were acted on even in his own time, by a comparison of his observations in his last tour of inspection of prisons in England and Wales with what he had found before he began his first continental travel. He vindicates the claims of Howard to be held in the light of a man of science, and a sanitarian as well as a philanthropist and social reformer. A book which consists of a condensed enumeration of facts and figures cannot lay claim to literary merit, but it will be found most useful to those desirous of reviewing the progress of sanitary reform, and the improvement that has taken place in the material and moral management of these institutions.

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THE appointment of Visiting-Surgeon to the Gaol, Guernsey, vacant by the death of Mr. Thomas Saumarez Lacy, has been given to Mr. Marc Anthony Bazille Corbin, by His Excellency, Major-General Sarel, C.B., Lieutenant-Governor of Guernsey.

# ENGLISH CHOLERA COMMISSION.

## THE RELATION OF BACTERIA TO ASIATIC CHOLERA.

At the meeting of the Royal Society on Thursday, February 5th, Dr. KLEIN, F.R.S., read a paper on this subject. The following is an abstract of this important communication.

Dr. Klein said that he proposed to bring before the Royal Society the results of an inquiry into the etiology of Asiatic cholera, undertaken, at the instance and expense of the Secretary of State for India, by himself, Dr. Gibbes, and Mr. Alfred Lingard, while in India. This investigation would be published *in extenso* by the India Office, but permission had been granted to bring to the notice of the Society some of the more important points of the inquiry, particularly those regarding the relation of bacteria to Asiatic cholera. He also gave the results of further observations made since the return of the Commission from India.

As is now well known, Dr. Robert Koch, in an extensive inquiry into the etiology of cholera in Egypt, Calcutta, and in France, 1883-84, undertaken by him, Drs. Gaffky and Fisher, at the instance of the German Government, has arrived at certain conclusions, which, briefly stated, are these:

1. In all persons suffering from Asiatic cholera, there occur in the rice-water stools during the acute stage of the disease certain well characterised bacteria, which, on account of their curved shape, Koch called "comma-bacilli."

2. These comma-bacilli are mobile rods, of small size, of about the same thickness as tubercle-bacilli, but only of half their length; they are always more or less curved, sometimes as much as to form half a circle; they vary in length according to the state of growth; they occur either singly or in couples, in the latter case arranged like an S.

3. The comma-bacilli occur in great numbers in mucus-flakes as well as in the fluid of the choleraic evacuations. They occur in the lower part of the ileum of persons dead in the acute stage, almost to the exclusion of other bacteria, and in such great numbers that the lower part of the ileum may be considered to contain almost "a pure cultivation of comma-bacilli."

4. The mucous membrane of the ileum, particularly that of the lower part, around and in the lymphatic glands located here—the solitary and Peyer's lymph-glands—exhibits in typical and rapidly fatal cases characteristic alterations: loosening and detachment of the epithelium of the surface, and of that lining the glands of Lieberkühn; swelling and congestion of the blood-vessels of the mucous membrane, particularly at the peripheral portions of the lymph-glands. These alterations are due to the presence, growth, and multiplication of the comma-bacilli in these tissues, and the disease cholera is caused by the production on the part of these comma-bacilli, and by the absorption on the part of the system, of a special chemical ferment.

This state (the presence of the comma-bacilli in the tissue) is most pronounced in the lower part of the ileum, higher up it is more limited, and gradually diminishes, and finally disappears in the upper part of the small intestine.

5. The blood and other tissues are free of any organisms.

6. The comma-bacilli grow well outside the body at the ordinary temperature of the room, but better still at higher temperatures up to 38° or 40° C. They divide transversely; after division, the two parts may remain joined end to end in the shape of an S; and, by further division, they may grow into a spiral-like or wavy form. They grow well in the mucus-flakes taken from the intestine, and placed on linen kept in a moist cell; they grow well on potato, in broth, in Agar-Agar jelly, in solid nourishing gelatine mixtures (gelatine, peptone, and beef-extract). In this latter substance they exhibit a peculiar and definite mode of growth not seen by Koch in any other bacteria. The comma-bacilli require for their growth an alkaline medium; they are killed by acid, by drying, and various antiseptic media.

7. On account of their constant occurrence in the intestines of patients suffering from Asiatic cholera, on account of their absence in all other diseases of the intestine, and on account of their peculiar mode of growth in nourishing gelatine, Koch claims for these comma-bacilli not only an important diagnostic value, but also considers them as the true cause of cholera.

8. Since his return to Germany, Koch has convinced himself of the correctness of the observations of Nicati and Rietsch, who maintain that cholera can be produced in dogs and guinea-pigs by injecting directly into the small intestine of these animals the comma-bacilli taken either directly from the choleraic evacuations or from artificial cultivations.

The investigations of the English Commission have led to the following conclusions.

1. Koch's statement as to the constant occurrence of comma-bacilli in the rice-water stools of cholera patients is correct; the comma-bacilli vary greatly in numbers in different stools and in different cases, in some being exceedingly scarce, in others numerous.

2. These comma-bacilli vary greatly in length, some being twice and three times as long as others, some well curved, as much as to form half a circle, others showing only just a slight bend. The name comma-bacillus is inappropriate; the organism is more correctly termed a vibrio.

3. The comma-bacilli occur in the mucus-flakes of the rice-water stools, as well as in those taken from the ileum of a person dead of cholera. The sooner after death the examination is made, the fewer comma-bacilli are found in the mucus-flakes; even in typical rapidly fatal cases, the mucus-flakes taken from the ileum, and examined soon after death (from between fourteen minutes to an hour or an hour and a half), contain the comma-bacilli only very sparingly indeed, and not to the exclusion of other bacteria. Our investigations do not bear out Koch's statement as to the lower part of the ileum being, in acute typical cases of cholera, almost "a pure cultivation of comma-bacilli." In not one of the many *post mortem* examinations of typical acute cases have we found such a state.

4. The mucous membrane of the ileum, in typical rapidly fatal cases, if examined soon after death, does not contain in any part any trace of a comma-bacillus or any other bacteria, not even in the superficial loosened epithelium. If the *post mortem* examination be sufficiently delayed, comma-bacilli and other bacteria may be found penetrating into the spaces of the mucous membrane. Koch's theory as to the comma-bacilli present in the mucous membrane secreting a chemical poison inducing the disease cannot, therefore, be correct.

5. Neither the blood nor any other tissue contains comma-bacilli or or any other micro-organisms of known character.

6. The behaviour of the comma-bacilli in artificial media is not such as to justify their being considered as specific. They grow well in alkaline and neutral media, are not killed by acids, and their mode of growth in gelatine-mixtures is not more peculiar than that of other putrefactive bacteria; they show marked differences when grown in different media, but not more so than the ordinary putrefactive bacteria when compared in their growth with one another. The comma-bacillus of the mouth shows the same peculiar character of growth in gelatine as Koch's comma-bacilli.

7. Koch overlooked the fact that "comma-bacilli" occur in other intestinal diseases, in the mouths of healthy persons, and, as shown recently, even in some common articles of food. (By Dr. Deneke in stale cheese.)

8. The experiments performed by Koch and others on animals do not in the least prove that the comma-bacilli are capable of producing cholera or any other disease. The results obtained by them are much more easily explained in an opposite manner.

9. There is direct evidence to show that water contaminated with choleraic evacuations, and containing, of course, the comma-bacilli, when used for domestic purposes, including drinking, by a large number of persons, did not, in the case of the tanks near the Jelepara Lane, produce cholera.

10. The mucus-flakes taken from the small intestine of a typical rapidly fatal case of cholera, contain numerous mucus-corpuscles filled with peculiar minute straight bacilli; in this state they are found when the examination is made very soon after death; soon, however, the mucus-corpuscles swell up and disintegrate, and then their bacilli become free. The small bacilli are never mixed in the mucus-flakes. They are one-third or one-fourth the length of the comma-bacilli, and about half their thickness. They are non-mobile; they grow well in Agar-Agar jelly, but show in their modes of growth no peculiarity by which they could be considered as specific. When grown on the free surface of the nourishing material they form spores.

11. These small bacilli are not present in the blood, in the mucous membrane of the intestine, or in any other tissue.

12. Experiments made with these small bacilli on animals produced no result.

13. Since my return to London, I have ascertained that the comma-bacilli of cholera show two distinct modes of division, one the known one of transverse division, and a second one of division in length. When growing in Agar-Agar jelly at the ordinary temperature of the room, after some days the bacilli swell up, owing to the appearance in their protoplasm of one or more vacuoles; as these vacuoles increase, so the

comma-bacilli become gradually changed, first into plano-convex, then into oblong bi-convex, and ultimately into circular corpuscles. The longer the original comma-bacillus, the larger the final circle. These circular organisms are mobile, just as are the comma-bacilli; and, by disintegration of the protoplasm at two opposite points, two perfect more or less semicircular comma-bacilli are formed. Growing the comma-bacilli in Agar-Agar jelly kept at higher temperatures (30 to 34° C.), the comma-bacilli multiply by transverse division only; but, transferring these to Agar-Agar jelly, and keeping this at the ordinary temperature of the room, they again gradually change into circular organisms, which, by division in the diameter of the circle, form two new comma-bacilli.

The British Medical Journal.

SATURDAY, FEBRUARY 7th, 1885.

## THE ATTEMPT ON THE LIFE OF O'DONOVAN ROSSA.

RARELY has society been more startled than by the news of last Tuesday's publications that an attempt had been made, by a young woman in New York, upon the life of O'Donovan Rossa. Succeeding so rapidly as it did to the events of the previous week, when the House of Commons, Westminster Hall, and the Tower were all injured by the hand of the reckless dynamitard, it was naturally looked upon in the light of a judgment upon the victim of this lady's vengeance. That epidemics of homicide and suicide have from time to time swayed all nations, and that there is a vast amount of imitation in these attempts, is well known to all students of history. And this homicidal act doubtless took its origin from one of a similar nature recently perpetrated in Paris.

The facts of the case are so fresh in the minds of the public, that it is needless to do more than mention them most briefly. It appears that Miss Dudley engaged O'Donovan in conversation, and then, stepping backwards, fired a shot from a revolver into his back, which penetrated the scapula. Four other shots were subsequently fired; but, although bystanders affirm that they were discharged at the prostrate man, Miss Dudley declared they were only fired into the air.

It would be indeed a bold piece of diagnosis to say whether this lady was or was not insane at the time of committing the act, unless indeed further particulars are forthcoming. It is well known that an insane murderer will take no steps to conceal himself, will give himself up to the authorities, will calmly confess to the murder, and also that little or no reason can often be found for the homicide. In this case, however, Miss Dudley was actuated by what, whether sanely or insanely, we do not yet pretend to say, was a motive of comprehensible revenge. Suicidal attempts in those who are guilty of these homicidal acts are common enough. A few years back, Frederick Hunt murdered his wife and child, and afterwards endeavoured to lie down under an approaching train on a line of railway. He was found insane at the Croydon Assizes, and is now, we believe, in Broadmoor. It is proved that, three years ago, this lady inhaled chloroform to an extent to render herself insensible at Liverpool Street Station, and that when in custody she was detected in the further act of taking opium. In September, 1883, a similar attempt with chloroform was made by her, apparently on her own life. "On her trial, it being established that she was incapable of pleading, she was ordered to be detained during Her Majesty's pleasure, and with this object was removed to the Sussex County Asylum, Hayward's Heath, where she was classed as a dangerous lunatic." When she was admitted, she was suffering from suicidal mania. After some months, she recovered, and was discharged by consent of the Home Secretary.

Dr. S. W. D. Williams, the eminent superintendent of the asylum at Hayward's Heath, describes Miss Dudley's case as one of moral congenital insanity. She was not a woman subject to delusions; but it was owing to this perverted moral nature that she never evinced the slightest contrition for her attempts upon herself; nor is it likely—in the judgment of the medical men who have studied her case—that she will be in the least degree able to understand that, in seeking the life of another, she has been guilty of any wrong. In Dr. Williams' opinion, she would always be liable to a recurrence of the suicidal mania; and this at any time would be equally liable to be transformed into homicidal mania. Indeed, during the earlier period of her detention, she was both homicidal and suicidal.

## NOISE AS A FACTOR IN DISEASE.

FOR the purposes of relation with the external world, our organs of consciousness, brain, and spinal cord are provided with organic apparatus, whose respective functions of receptivity we call the senses. The vibrations set up by what we designate light, whether white or coloured, are received by the rods and cones of the retina, and, being either there or in the optic centre transposed, so to say, into the code of the consciousness, become known to the inner self. In like manner, the vibrations propagated by the tympanic apparatus, acting as the disc of a telephone to the organ of Corti, are, in the auditory centre, transposed, and are construed and perceived by the inner consciousness; sound, taste, smell, touch, or feeling, all act in a like fashion, or on the same principle. This is perfectly well known to every physiologist. There is, however, a consideration of fact which does not sufficiently often enter into our calculations when estimating the effect of the external or the internal; namely, that the consciousness does not take cognisance of all, or nearly all, the impressions which are conveyed to it, and that these unnoticed impressions are not without their effect.

It is probable that everything we see, hear, taste, smell, and feel, plays a part in the constructive and nutrient development of the central elements of the nervous system. Development through the environment—which we know to be Nature's method of culture—requires that all external influences should operate in this way, and experiment demonstrates that they do. When, therefore, we speak of noise as a nerve-destroyer, we do not only regard the conscious effects of noises that disturb and irritate, but the worrying and destructive influence of sounds which may or may not attract the attention and excite the mind of the person injured.

Setting aside for a moment those more popular considerations which are generally recognised and discussed in relation to the injurious effects of needless noises on the sick and the nervous, let us bestow a few moments' thought on the more scientific aspects of this question, and try to see if there be not grave scientific reasons why the profession should take the matter seriously in hand, and endeavour to obtain such amendments of the law as may be necessary to make the production of needless noises a legal offence, as it is a social and personal one.