air or foul drains can create, but which may be pushed by foul air into virulent energy of reproduction. You may think that I am treading on dangerous ground, that I am putting forth views that may interfere with salutary practice. No such thing. If you wish to learn the impotence of medical science and practice in dealing with contagious diseases, you have only to refer to a recent Harveian oration by Dr. Gull. Such diseases defy the physician. They must burn themselves out. And, indeed, this, though I do not specially insist upon it, would favour the idea of their vital origin. For if the seeds of contagious disease be themselves living things, it will be difficult to destroy either them or their progeny without involving their living habitat in the same destruction.

And I would ask you to be cautious in accepting the statement which has been often made, and which is sure to be repeated, that I am quitting my own *métier* when I speak of these things. I am not dealing with professional questions. I am writing no prescription, nor should I venture to draw any conclusion from the condition of your pulse and tongue. I am dealing with a question on which minds accustomed to weigh the value of experimental evidence are alone competent to decide, and regarding which, in its present condition, minds so trained are as capable of forming an opinion as on the phenomena of magnetism and radiant heat. I cannot better conclude this portion of my story than by reading to you an extract from a letter addressed to me some time ago by Dr. William Budd of Clifton, to whose insight and energy the town of Bristol owes much in the way of sanitary improvement.

"As to the germ-theory itself," writes Dr. Budd, "that is a matter on which I have long since made up my mind. From the day when I first began to think of these subjects, I have never had a doubt that the specific cause of contagious fevers must be living organisms. It is impossible, in fact, to make any statement bearing upon the essence or distinctive characters of these fevers, without using terms which are of all others *the most distinctive of life*. Take up the writings of the most violent opponent of the germ-theory, and, ten to one, you will find them full of such terms as 'propagation', 'self-propagation', 'reproduction', 'self-multiplication', and so on. Try as he may—if he have anything to say of those diseases which is characteristic of them—he cannot evade the use of these terms or the exact equivalents to them. While perfectly applicable to living things, these terms express qualities which are not only inapplicable to common chemical agents, but, as far as I can see, actually inconceivable of them."

Once, then, established within the body, this evil form of life, if you will allow me to call it so, must run its course. Medicine as yet is powerless to arrest its progress, and the great point to be aimed at is to prevent its access to the body. It was with this thought in my mind that I ventured to recommend, more than a year ago, the use of cotton-wool respirators in infectious places. I would here repeat my belief in their efficacy if properly constructed. But I do not wish to prejudice the use of these respirators in the minds of its opponents by connecting them indissolubly with the germ-theory. There are too many trades in England where life is shortened and rendered miserable by the introduction into the lungs of matters which might be kept out of them. Dr. Greenhow has shown the stony grit deposited in the lungs of stone-cutters. The black lung of colliers is another case in point. In fact, a hundred obvious cases might be cited, and others that are not obvious might be added to them. We should not, for example, think that printing implied labours where the use of cotton-wool respirators might come into play; but I am told that the dust arising from the sorting of the type is very destructive of health. I went some time ago into a manufactory in one of our large towns, where iron vessels are enamelled by coating them with a mineral powder and subjecting them to a heat sufficient to fuse the powder. The organisation of the establishment was excellent, and one thing only was needed to make it faultless. In a large room a number of women were engaged covering the vessels. The air was laden with the fine dust, and their faces appeared as white and bloodless as the powder with which they worked. By the use of cotton-wool respirators, these women might be caused to breathe air more free from suspended matters than that of the open street. Over a year ago I was written to by a Lancashire seedsman, who stated that during the seed-season of each year his men suffered horribly from irritation and fever, so that many of them left his service. He asked me could I help him, and I gave him my advice. At the conclusion of the season this year he wrote to me that he had simply folded a little cotton-wool in muslin, and tied it in front of the mouth; and that he had passed through the season in comfort, and without a single complaint from one of his men.

The substance has also been turned to other uses. An invalid tells me that at night he places a little of the wool before his mouth, slightly moistening it to make it adhere; that he has thereby prolonged his

sleep, abated the irritation of his throat, and greatly mitigated a hacking cough from which he had long suffered. In fact, there is no doubt that this substance is capable of manifold useful applications. An objection was urged against the use of it: that it became wet and heated by the breath. While I was casting about for a remedy for this, a friend forwarded to me from Newcastle a form of respirator invented by Mr. Carrick, an hotel-keeper at Glasgow, which meets the case effectually, and, by a slight modification, may be caused to meet it perfectly. It consists of a space under a partition of wire-gauze intended by Mr. Carrick for "medicated substances", and which may be filled with cotton-wool. The mouth is placed against an aperture, which fits closely round the lips; and the air enters thy mouth through the cotton-wool by a light valve, which is lifted by the act of inhalation. During exhalation, this valve closes; another breath escapes by a second valve into the open air. The wool is thus kept dry and cool; the air passing through it being filtered of everything it holds in suspension.*

EXFOLIATION OF THE LINING OF THE BLADDER.

By J. J. PHILLIPS, M.D.,

Assistant Obstetric Physician, Guy's Hospital.

THE interesting case recorded in the JOURNAL of June 10th, by Dr. Wardell of Tunbridge Wells, in which there was exfoliation of the mucous membrane of a female urinary bladder, although doubtless rare, is not, as Dr. Wardell supposes, unique. At a meeting of the Obstetrical Society, held on December 4th, 1861, Mr. Spencer Wells exhibited a cast of a bladder, expelled by a patient who a few weeks previously had been delivered of her first child with instrumental assistance after considerable difficulty. Symptoms of cystitis followed; but after the expulsion of the membrane recovery rapidly ensued. The specimen was examined by Dr. Harley and Mr. Wells, and was found to consist of the whole of the mucous membrane and some portions of the muscular coat of a dilated bladder. At a subsequent meeting, Dr. Tanner referred to a specimen in the museum of the College of Surgeons, which was found in the interior of a male bladder after death, and which is described as "a structure exactly resembling the mucous membrane of a bladder separated as a slough in one piece".

A case presenting many points of resemblance to that recorded by Mr. Wells was brought before the Pathological Society by Dr. Martyn in 1863, in which exfoliation followed long retention of urine during labour; and in the course of the same year Dr. Wilks and Mr. Henry Lee exhibited specimens of the kind found after death within the bladder, perfectly detached from the muscular coat. In the year 1868, the following case, which has not hitherto been published, came under my notice.

M. J., aged 21, was seen by me in consultation on the 11th September. She had been delivered of her first child on the 8th of that month, and the medical man who was called in on that day said that he found her with the child's head firmly wedged in the pelvis, and her bladder extending to the umbilicus. It was said that she had been in labour four days. Considerable extracrine force with the forceps had to be used to complete delivery. On the 11th, the lower part of the vagina and the perinæum were in a state of superficial slough from the long-continued pressure. These parts, however, healed well; but the patient was admitted under my care into the Waterloo Road Infirmary on the 7th of October on account of the urinary troubles from which she suffered. There was at that time almost complete incontinence of urine, but no communication existed between the bladder and the vagina or uterus. The meatus urinarius was so dilated as almost to admit the tip of the little finger, and a small portion of the anterior part of the urethra had sloughed away. The day after admission she passed from the bladder a membranous substance, the whole of one surface of which was coated with a phosphatic deposit, and which, when floated in water, appeared to form a nearly complete cast of the bladder. This patient improved under treatment; and a week later, when the bladder was being washed out, small shreds of a similar character were expelled. The last exfoliation took place on the 31st October, when a piece of the mucous membrane and its submucous tissue came away, having its inner surface covered with phosphates.

Judging from the great frequency with which retroversion of the gravid uterus produces retention of urine, and also leads to expulsion of its own contents between the third and fourth months of gestation, and guided by the history of Dr. Wardell's case, I venture to suggest that this condition may have existed.

* Mr. Ladd, of Beak Street, sells these respirators.