of its members not less important than their practical and scientific attainments." This was the principle introduced by the founders of King's College; and no one believed its truth more steadfastly, or endeavoured to carry it into practice more earnestly, than Dr. Todd. Long ago he endeavoured to remove many of the difficulties which beset the medical student on his first coming to London; and in a letter to the Principal in 1842, strongly advocated the extension of the collegiate system to students of this department.

From a very early period of his life, Dr. Todd endeavoured to increase the intimacy of the relationship between student and teacher, and warmly supported every attempt to render teaching more efficient. He objected to increasing the number of lectures, but urged the importance of making the teaching more *direct* in its character, so that the student might be encouraged to see and observe and think for himself. No one was more alive to the serious defects existing in connection with medical education than Dr. Todd. He endeavoured to remedy them to the utmost of his power; but the most serious were unfortunately irremediable, and not a few remain uncorrected even now. Little has been done and little can be done until some decided change like that proposed in the present Government Bill has been actually carried, and a number of the absurd restrictions which press heavily upon teachers and students completely removed. Good general examinations year after year during the period of studentship, conducted by examiners appointed for limited periods, whose knowledge has been acquired within a quarter of a century of the period when they examine, is really all that seems to be required. If this were established, all registration formalities and compulsory attendance might be swept away, for the student would soon find out for himself how he could most efficiently study the various subjects of which he would be compelled to show that he possessed a competent knowledge.

EARLY OPENING OF THE NEW BATHS OF BORMIO.

By C. J. B. WILLIAMS, M.D., F.R.S.

IN my notes on "Alpine Summer Quarters for Invalids," printed in the BRITISH MEDICAL JOURNAL last autumn, I called attention to the remarkable eligibility of Bormio, as combining many advantages not to be found in the Engadine and other high districts in Switzerland. At a height of 4,600 feet, it is, nevertheless, sheltered from the colder winds from the north and east by the lofty Stelvio mountains immediately behind it; and although it has high mountains on all sides, yet those to the south are at a greater distance, and do not shut out the warming and vivifying influence of the sun's rays. Consequently, during the winter and spring months Bormio preserves a temperature much milder than that of any of the places in Switzerland of equal height; whilst the dryness of the soil and smaller amount of rainfall preclude all damp in the summer, and any great accumulation of snow in winter and spring.

From a letter just received from M. Caffisch, the intelligent manager of the Bagni Nuovi of Bormio, I find that during the last month there has been no snow, but uninterrupted fine weather; and although the high mountains are still covered, these are not near enough to give the damp and chilly feel to the air, with fog and clouds, so prevalent in Switzerland at this season. These observations, therefore, confirm the recommendations which I gave of this place for the trial of the *Alpine cure* with suitable patients who have been spending the winter on the Riviera, in Rome, or in other of the warm places of the south. I quite participate with my friend Dr. Hermann Weber in the belief that the high Alpine climate is likely to be beneficial in certain cases of phthisis and scrofula; but I think that the trial will be more safely and agreeably made, if, in selecting the high stations, a preference be given to those which are most sheltered from the coldest winds, and most free from the chill and dampness arising from the proximity of melting snow-fields and icy lakes.

I have just been informed by M. de Planta, chief proprietor of the Bagni Nuovi, that the establishment was opened for the reception of visitors on April 22nd, in compliance with a suggestion which I made in my notes; and any, who are recommended to try the fine air of this favoured locality, can be comfortably accommodated. At present, the only way of access is up the Valtelline, by road from Como and other parts of Italy; but in another week it is expected that the Stelvio pass will be open from the Tyrol and other parts of Germany. I also recommended Le Prese, in the Poschiavo Valley of the Valtelline, at a height of 3,000 feet, as an early summer residence. There is a very comfortable hotel, with also a bathing establishment, but I have not heard whether it is yet open for travellers.

THE GERM-THEORY.

By GEORGE F. ELLIOTT, M.D., B.A.,
Physician to the Hull Infirmary.

SINCE the publication of Professor Tyndall's well-known lecture on "Dust," increased attention has been directed to the interesting inquiry, Whether or not certain diseases are spread, and unhealthy conditions are set up in wounds, by the agency of air-borne germs? Biologists may be left to decide the vexed question of the origin of infusorial life; but supposing for the moment that it be proved to be due to germs, may we not still ask, Are they, or anything analogous to them, the parents of disease? Is it owing to their destruction that Professor Lister has attained his admirable results with what is known as the antiseptic treatment? Is it by destroying germ vitality that the disinfectant arrests the spread of contagious diseases? To each of these questions, many will agree in saying, the answer is no; and I think we can find a satisfactory explanation of the means by which certain diseases are spread, on grounds that do not involve the supposition of anything so equivocal as the existence of germs seems to be.

With regard to the effect of antiseptics on wounds and injuries, medical men entertain, I think, one or other of three opinions. 1. There are those who agree with Professor Lister as to the existence of the ubiquitous germ, and the advantages derived from its supposed destruction. 2. Others believe that the good effects of carbolic acid are not due to its germ-destroying properties, but that it affords material for oxidation, and thus spares the tissues to which it is applied; or that it acts by forming a layer of coagulated albumen by which the air is excluded. 3. Others, again, smile at all such applications as little better than superstition, and either stoutly deny that any good results from antiseptic applications, or ask us to prove the obviously difficult negative that a certain wound or amputation would not have done as well on some other plan of treatment. But if we take it as at least the prevailing opinion that antiseptics are of use, we find that, whatever may be the different theories as to their action, there are two acknowledged facts which may be made to throw considerable light on this important subject. 1. There is the very old observation that wounds and injuries will do best if the air can be kept from them. 2. *Ceteris paribus*, they will do better in the pure air of the country than in the air of a crowded town; better in a house or room where there are few occupants than in one where there are many. The first observation evidently leaves it an open question, whether an evil effect is produced by the air or by its contents; but the second is, I think, sufficient to show that the evil agent is not the air itself, *i.e.*, its oxygen, as we should expect to find this, at least, as active in the pure air of the country as in town air. If the evil effects then are not produced by the air itself, it must be by some foreign matter contained in it; and the question is, what is this foreign matter? "Germs," says one, "and the good effects of antiseptics are due to their killing them." "I won't believe it," says another, "if there be germs in the air, the powerful microscopes of the present day ought to show them." Surely, in endeavouring to account for the spread of contagious diseases, we have no need to look for the existence of these germs at all; that is, if we understand the word germ to signify anything corresponding to the germ of an animalcule, or the spore of a fungus. But if these septic influences are due neither to germs nor to the decomposing agency of the air itself, to what, it will be asked, are they due? Professor Tyndall, while declaring himself a firm believer in the germ-theory, casually refers to what seems to me to afford a much more reasonable explanation of the spread of certain diseases than this theory does. I must first observe that he seems to have ignored the existence of any kind of organic matter in the air, save that existing in the form of germs; but have we not (as has been shown by Dr. Angus Smith, of Manchester) putrescible organic matter thrown off from the bodies of human beings? This organic matter being combined with the watery vapour exhaled from our bodies, and by this means attaching itself to damp-absorbing surfaces in its neighbourhood—is it not easy to conceive that this organic matter is at times inert and harmless, which at others, when given off from patients suffering from such diseases as small-pox, scarlatina, and erysipelas, it is loaded with the virus of these diseases; this virus being of such a subtle and imponderable nature that it is impossible to recognise it by any of our present methods of research? There is nothing more remarkable in this than that we should be unable to tell what constitutes the difference between a drop of matter taken from a non-specific pustule and that from a pustule of small-pox. What can we say of the difference between the desquamated cuticle of the convalescent from scarlatina and that which is incapable of spreading any contagion? Is the poisonous element of difference between them anything that can be suitably expressed by the word germ?

Speaking of the sodium which the spectroscope reveals in the air, Professor Tyndall says that the suspended particles are "the rafts upon which it floats, as when they are absent the sodium disappears". Surely, instead of looking upon the particles as disease-germs, it is more reasonable to suppose that they are the rafts upon which contagion, as well as sodium, floats; that in the case, for instance, of erysipelas occurring in a hospital ward, one patient does not suffer because there arose from the body of another patient innumerable germs (of whatever nature we may suppose them to be), but because the dust surrounding the first patient became charged with the specific virus of the disease from which he was suffering, and that, by this dust circulating through the air, the disease in due time became conveyed to the wound of the second patient. From this source, also (*i.e.*, the floating particles), if such diseases as small-pox, scarlatina, and typhus, were present, the virus would be received, probably, by inhalation.

There are two or three considerations which support the idea that these floating particles, though in no sense germs, are, nevertheless, the carriers of contagion. 1. We know how readily articles of cotton and woollen fibre (by virtue, probably, of their hygroscopic nature) acquire contagious properties, and also with what difficulty they are made to part with them; and of the *débris* of such materials this floating dust is largely composed. The blanket or counterpane from the bed of a typhus or erysipelatous patient would most probably convey its particular poison to any person fitted to receive it; and the only reasons that particles given off from, or which had been in contact with, such materials should fail to do so are—they may not reach a fitting soil in sufficient quantity for the development of the disease; or, they may not do so before they have been subjected for a long time to the disinfecting influences of ventilation. 2. This belief accords with the known good effects of the exclusion of air from wounds, and of the application of antiseptics, quite as well as the germ-theory does. In the first case, the floating particles and their poisonous burden are shut out together; in the second, the virus they may carry is rendered incapable of exercising its effects by the agency of whatever antiseptic may be employed. 3. The dust taken from such places as hospital-wards and barrack-rooms has been shown to contain epithelial cells from the skin; and that these and the other constituents of it should form "rafts" for the conveyance of organic poisons, is suggested by what Professor Tyndall says he believes to be the case with the sodium present in the air; and it is also a much smaller tax on our belief than is the separate existence of these undemonstrated germs.

For one important reason, I believe it would be well if the theory of their existence were abandoned; and that is, I think the antiseptic treatment would be more extensively used and impartially put upon its trial, were it not for the distrust engendered by its being directed against what is naturally looked upon by many in the light of a hypothetical enemy.

FIBROUS TUMOUR OF THE VAGINA.

By W. T. GREENE, M.B., etc.,
Formerly Medical Officer, Moira Dispensary.

JANE D., aged 51, for fourteen years previously to my seeing her had been troubled with "a gathering in the front passage," which prevented her from passing her urine, and necessitated the constant employment of a catheter to empty her bladder, an operation which she had learned to perform for herself, with considerable adroitness. She was a very strong, able-bodied woman, and had been accustomed to field-labour, but had latterly been occupied in less laborious work. On Thursday, February 20th, 1868, she had "put in a heavy day's washing," and at its close, found the "gathering" had descended lower than it had ever done before, except on one occasion, three years previously, when considerable hæmorrhage had taken place.

On the 21st of February, she was attacked with severe pains, which a neighbour declared to have been "exactly similar to labour-pains," and a tumour, "about as large as a goose's egg," was expelled, with violence, beyond the vulva, within which she found it impossible to return it. During the night and the following day the tumour increased considerably in size; so much so that when I first saw it on the 23rd of February, it was as large as the head of a child a month old, and presented very much the appearance of an inverted uterus, for which it had been taken by a person who was in attendance. Learning, however, that not only the woman had never had a child, but that there was every reason to suppose her to be a virgin, I questioned the correctness of this opinion, and proceeded to make an examination.

The tumour, which was of a bluish-red colour, and was covered with large veins, had a soft, flabby feel externally, but a hard, resisting

centre. The stalk, or base, extended from immediately above the meatus urinarius to within a very short distance of the os uteri, and lay more to the left than to the right; facts which, however, were not ascertained until afterwards, for at that time the tumour blocked up the entrance to the vagina, the perinæum being lacerated to within half-an-inch of the anus. Catheterism had no effect upon the size of the tumour, which had no orifice or opening in it whatsoever.

Having procured the assistance of a surgical friend, we removed about two-thirds of the mass, posteriorly, where it was sloughy; the portion removed resembling coagulated blood entangled in the meshes of cellular tissue; the remainder, which was firm, and quite unsensitive, was, by the advice of my friend, enveloped in a linseed-meal poultice and supported by a suspensory bandage, awaiting daylight. I wished to inclose it in a ligature, but my friend, not satisfied as to its nature, thought it would be better to wait. On the 25th of February, however, I passed a double ligature through the base of the tumour, which was so thick that it was not thoroughly strangulated for several days, although the ligature was tightened daily as much as possible. On the fifth day another waxed thread was passed round the base, then much constricted, of the tumour, and on the following morning my patient was delighted to show me "the lump," which had dropped off during the night. Even then, the tumour was the size of a large goose egg, and was of a strongly fibrous nature, traversed by a few blood-vessels; a longitudinal fissure was apparent, to the depth of about an inch, on its posterior surface, but there was no trace of a cavity of any kind. Two days after the detachment of the growth, the woman was able to pass her urine spontaneously, and has continued to do so ever since. On the 20th of April, 1868, there was no vestige of the tumour remaining, with the exception of a cicatrix, on the anterior wall of the vagina, where the pedicle had been attached.

It was a very puzzling case at the time; but, seen by the light of subsequent experience, I have no doubt as to its having been a fibrous tumour encysted in the anterior wall of the vagina, whence it was spontaneously enucleated during the woman's exertions while engaged in washing, and probably lifting heavy tubs; when blood-vessels were ruptured, and hæmorrhage took place into the cellular tissue between the wall of the vagina and the tumour, thus adding to the apparent size of the latter, and the perplexing aspect of the case.

I regret that I was not allowed to preserve the tumour, for the woman made a point of having it buried, and I did not insist.

Dr. Churchill, in his *Diseases of Women*, records a somewhat similar case as having occurred in the practice of Dr. McClintock, of Dublin; but considers it rare, which is my excuse for exhuming these notes, taken at the time.

ATROPINE POISONING FROM HYPODERMIC INJECTION: SCARLATINA RASH.

By A. W. STOCKS, Esq., Salford.

HAVING had an attack of lumbago for ten days or a fortnight, I determined to try the effect of hypodermic injection, and got a medical friend to give me six minims of a solution of atropine, which I had frequently used in my own practice, containing one grain of the alkaloid to two drachms of water. From this I obtained very satisfactory relief for a day or two. The pain recurring, I again had recourse to my friend, who injected a dose of his own solution, containing a precisely equal quantity of atropine which he had obtained from a different druggist. This was at about 9.30 in the evening of this day week. In less than five minutes, I became aware that I had an overdose; my heart began to labour heavily, and, to my feelings, roughly, at the rate of about fifty per minute, accompanied by a sore feeling immediately over the base of the heart. This continued about ten minutes, and was immediately followed by intense thirst, dryness of the mouth and throat, with great perversion of sensation, everything tasting intensely acid. The skin of my whole body began to feel turgid and swollen, and, in about an hour and a half, was covered with a rash precisely similar to that of scarlet fever. There was also diplopia; during the evening, I was completely unable to read the newspaper. Next morning, there was power to read with one eye at once; and in the evening the disturbance in the vision had entirely gone, as well as all other signs of the action of the drug. My object in sending this account is twofold: first, to warn my professional brethren in the subcutaneous use of the alkaloids, lest, taking for granted that all samples are of a similar strength, they may, when using a fresh supply of the drug, unwittingly produce symptoms of a much more disagreeable character than those above related; and, secondly, to give an instance of the peculiar rash occurring after the administration of belladonna or its active principle, a fact which, I believe, is disputed by some no mean authorities of the present day.