When Dr. Sanger is as accomplished in the use of the microscope as Dallinger, he will probably find in the contents of these tubes the still smaller beasts which, by repeated buttings against the fragments of dead tissue, prepare the food on which the bacteria live. The bacteria are the phenomena of decomposition and not the cause of the disease. If it were not so, how could we explain the familiar fact of rapid recovery after the opening of a superficial abscess in a person otherwise healthy? The evacuated pus swarms with bacteria; the pus is dead tissue. The bacteria do not attack the living tissue. The moment their food is removed they are starved into subjection; the abscess cavity heals and the patient recovers. But put this germ-theory of disease into the position of power, which its German advocates claim for it, and recovery is theoretically impossible. The whole economy must become an added egg. Given the access of the bacillus tuberculosis to the Fallopian tubes, the infection of the peritoneum is a logical sequence. But I have opened the abdomen and removed chronically inflamed Fallopian tubes distended with dead matter infected by this bacillus, and with the infundibula not occluded, and the patient is now well and healthy, nearly three years after the operation. I have opened the abdomen, in many cases packed full of tubercular matter, and drained it like a common abscess, and have cured the patients. The same thing has been done by Esmarch, who has identified the bacillus in the orthodox German fashion. Does anyone believe that either of us removed every bacillus and every spore? I know I did not, for the tubercular masses in several of my cases kept coming out for weeks afterwards, yet the patients recovered. What I really did was to enable my patients to get rid of the dead or dying exudation on which the bacilli lived, of the decomposition of which they are probably the means and wholly the result. Apply this German notion of the germ-theory of disease to the facts of clinical medicine and surgery, and see how irreconcilable with the facts it is. If true, the amputation of a finger ought to be as fatal as the loss of the thigh at the hip-joint. But it is not so, in the same hospital and under precisely similar circumstances. Amputations have an increasing mortality everywhere just as the point of severance approaches the trunk. Why? Clearly on account of the "diminished vitality" of the general tissue due to the "shock." These two good old-fashioned terms are sneered at by your modern *savants* because they serve only to express our ignorance. The reproach is true; we are ignorant. But it is better to be ignorant and to confess it than to parade a lot of inaccurate conclusions in the name of science.

If the germ-theory of tubercle, that it is the result of the existence of the bacillus tuberculosis, were correct, none of us were safe from consumption, for we must meet these deadly brutes at every cabstand, and at every gathering in the town-hall. If it were true, Bennett's fact that multitudes of people recover from consumption could not be sustained, yet every physician knows it is true.

We do not know exactly what we mean when we speak of diminished vitality, any more than we know exactly what we mean when we speak of an earthquake. But there is such a thing. A man's toes remain healthy until the deposits of lime-salts in the walls of the arteries deprive them of nutrition and diminish their vitality, till they can no longer resist the attacks of the ever-present germ. The germ attacks the dead and nearly dead tissue. Drysdale's flagellate monad probably begins the deadly work of senile gangrene, and the bacteria finish it. But there is a line of demarcation beyond which the little beasts are powerless by reason of the resisting vitality. Some indiscreet surgeon interferes, makes a clot in the artery; the clot runs up, nutrition stops, vitality is destroyed, and the germs wreak their evil wills.

In conclusion, let me again say that as the wrecks of the cellular pathology remain to us most valuable contributions towards the solution of the mysteries of disease; as the construction by Bennett of a scheme of molecular pathology did much to help us, so has the germ-theory rendered us great service. But as a final answer it is insufficient, and its wholesale and reckless application is alike mischievous and misleading.

THE new children's ward in connection with the Westminster Hospital was opened by their Royal Highnesses the Duke and Duchess of Connaught, who were accompanied by Princess Margaret, on July 13th. Archdeacon Farrar presented a cheque for £1,200, being the amount subscribed in connection with St. Margaret's Jubilee Fund, and sufficient to perpetually endow two cots in memorial of Her Majesty's Jubilee. Mr. James Hora, a parishioner of St. Margaret's and a governor of the hospital, has endowed a third cot by contributing £600; and a member of the committee has undertaken to maintain a fourth by an annual payment of £30. Four out of the twelve cots available have been endowed.

AN ADDRESS

ON

PLYMOUTH AS A HEALTH-RESORT;

TOGETHER WITH SOME REMARKS ON THE CONTAGIOUS DISEASES ACT.

Delivered at a Meeting of the South-Western Branch.

By PAUL SWAIN, F.R.C.S.,

President of the Branch.

GENTLEMEN,—It is with no small pleasure that, on behalf of the profession here in Plymouth, I bid you a hearty welcome to our town. I presume that most, if not all, of you are to some extent acquainted with the beauties of Plymouth and its immediate surroundings. We who live here have, alas, to encounter that familiarity which breeds contempt. We live day after day amongst our lovely scenery by land and sea, and we fail to recognise what strangers tell us who have travelled around the world, that when they come to Plymouth they have seldom seen a lovelier spot. Looked at from the standpoint of public health returns, our town certainly does not apparently show a favourable position. In the first quarter of 1887, the death-rate of Plymouth stands at 27.6 per 1,000, the average death-rate of twenty-eight large towns being 22.0. The average infant mortality in these twenty-eight towns of infants under 1 year of age was equal to 145 per 1,000, whilst that of Plymouth amounted to 212. Without desiring to minimise the effect which these figures should have on our sanitary efforts, it is but just that I should point out that they are drawn from an area which by no means represents the population of Plymouth. They are taken from the population of the municipal boundary, and it has been shown by our medical officer of health, Mr. Greenway, that the population included in that boundary represents an average of 53.3 persons to the acre, whereas the average density of population in the twenty largest towns of England is only 38.6.

Dr. Bloxall, in his report on the sanitary condition of Plymouth in 1879, stated that in six streets most densely populated, the death-rate was 30 per 1,000, but that the rest of the municipal area had only a death-rate of 21 per 1000. But Plymouth should not, as far as her sanitary record goes, be judged only by the lowest and most densely populated portion of her area. She has stretched far beyond her municipal boundary. We have now fortunately a sanitary authority established on our outskirts, embracing the beautiful neighbourhood to the north; and I have before me the report of the medical officer of that district, Mr. Edlin, for 1886, showing a death-rate of only 11.3 per 1,000.

As to our climate, we may claim to take a good position. We have obtained a most unfair notoriety with regard to our rainfall; but in reality our rainfall bears comparison with that of other places of resort. Looking over *Symon's British Rainfall* for 1885, I find that in that year it rained on 199 days in Plymouth, and that our depth of rain was 34.57 inches. At Penzance it rained on 218 days, with a depth of 45.45 inches; at Dawlish, 210 days, 34.37 inches; at Torquay, 190 days, 33.45 inches; at Buxton, 201 days, 48.92 inches; at Bournemouth, 31.08 inches; at Brighton, 174 days, 31.42 inches.

The mildness of our climate is proverbial, and during last winter, when all the surrounding world was clothed in snow, Plymouth enjoyed a happy immunity from the infliction.

Take her all round, there are few places I know more suitable as a place of resort for pleasure, amusement, or the maintenance of health, than Plymouth. But, from our own particular stand-point as a Medical Association, the town of Plymouth deserves our thanks. She has lately built a hospital which is not only a credit to the neighbourhood, but which, I venture to think, is a splendid addition to the great medical charities of England. It is much to the honour of the three towns that within the last quarter of a century they should have built two model hospitals—the Royal Albert Hospital at Devonport and the new South Devon Hospital at Plymouth. At the birth and early growth of the former I had the honour to assist. With the latter now my lot is cast, following in the steps of men whose names are well known in the annals of English surgery, and with whom, in the persons of their sons, Whipple and Square, I have the pleasure to work as my colleagues.

And this leads me to make a few remarks on the subject of medical education at provincial hospitals. I have for years past contended

that the vast resources of teaching and experience at our large country hospitals are to a great extent wasted as means of clinical teaching. It is notorious that clinical teaching in London is not equal to the demand. Why, then, should not an effort be made to utilise the large amount of clinical experience that lies dormant in our provincial hospitals? Supposing, for instance, that at the South Devon Hospital the physicians and surgeons were to give each of them once a week a clinical lecture on cases under their care in the hospital; and supposing that their visits to the hospital were paid on regular days and at regular hours, with the express purpose of imparting knowledge to students, is it not possible that a vast amount of good might accrue to every one concerned? The hospital would be visited more regularly and systematically, the physicians and surgeons would undoubtedly be stimulated to a more exact and careful study of disease, and students would have a wider and more varied field for study and observation. I have strong reason to believe that if such a plan were adopted, the examining bodies in London would recognise it as part and parcel of the curriculum of medical education.

Much as I desire to avoid the question, and certain as I am that you are all heartily sick of it, I feel however compelled to call your attention to the thread-bare subject of the Contagious Diseases Acts. I do so because we have entered on a new phase.

The administration of the Acts at the Royal Albert Hospital was all that could be desired. The results were twofold; first, an undoubted diminution of venereal disease; and secondly, a very considerable gain to the morality of the three towns. I am one of those who constitute, I am sure, the great majority of our profession, to whom the idea of curing venereal disease for the more economic consideration of profit or loss to the two services is utterly repulsive. As one bound by professional duty to use my best endeavours to cure disease, and to prevent it, I treat venereal disease as I would treat small-pox or scarlet fever. But that is a matter quite distinct from the action either of the State or a community, and I hold that for any public body to set themselves to cure venereal disease without at the same time making the very best provision within their power to abate the moral evil, and to afford adequate means of reformation to the unfortunate women who are the victims of the disease, deserves strong condemnation. Hitherto this has not been the case, and it is within my own personal knowledge that the reformatory work which was accomplished at the Royal Albert Hospital, to a great extent due to the tact and zeal of the late matron Miss Farro, was of a most satisfactory character. It is useless to refer to the action of those theoretical philanthropists who, ignorant of the practical working of the Acts, have succeeded in bringing all this work to an end. It is, however, a most extraordinary fact that, in this place where the results of the Acts are well known, men in all positions of life, of all creeds and of every shade of politics, agree in regretting their abolition. Neither would it be profitable to investigate the psychological condition of a House of Commons that could sanction their repeal in the face of the report of a Royal Commission in their favour. We may leave such a consideration to our worthy secretary, whose knowledge of lunacy enables him better to deal with such a question. But the fact remains that the repeal of the Acts has been attended with a considerable increase of disease and immorality in the three towns.

With regard to the increase of venereal disease, I will not trouble you with any long statistics, but merely place before you the returns of the naval and military hospitals. From the former I have received returns for the years 1880 to 1886 inclusive. In the year 1880 the percentage of admissions into the naval hospital of cases of primary syphilis was 9.45. In 1886 the percentage was 18.66.

The military returns are infinitely more striking. I have here the returns from 1878 to 1887. In 1878 the ratio per 1,000 admitted into hospital for primary syphilis was 30; in 1887 it has risen to 209 per 1,000. These figures speak for themselves as to the increase of disease. With regard to the increase of immorality, there is a very general consensus of opinion that juvenile prostitution has much increased. Under the deterrent powers of the Acts young girls were almost entirely prevented from following the avocation of a prostitute, and through the intervention of the police many children on the brink of ruin were rescued, and sent either to reformatories or restored to their parents. Now prostitutes of the ripe age of 10 or 12 roam our streets unmolested, and I am assured by persons engaged in rescue-work that it is not unusual to find children of that age affected with venereal disease. When at last the Government grant was entirely withdrawn from the Royal Albert Hospital, and the lock wards were closed, those who were engaged in reformatory work were met with this difficulty, that in the event of a woman who desired to be admitted into a home being found, as is frequently the case, diseased, there

was no place to which she could be sent for cure. Thus reformatory work was much impeded—in fact, nearly brought to an end.

This difficulty has been, in a measure, overcome. The Government have made a grant to the Royal Albert Hospital which has enabled them to re-open thirty beds for the treatment of venereal disease. So far as it may meet the difficulty of those engaged in reformatory work, we (for I think I speak here the mind of many gentlemen in Plymouth with whom I am associated in this matter) approve of the movement; but we have yet to know whether it will be of much assistance. Beyond that I fear little benefit will be obtained, for this reason, that there is no compulsory power to retain a woman in hospital until she is cured, and that, as a matter of fact, women leave the hospital uncured; neither is there any power of periodical examination, the result being that no woman will apply for admission to the hospital until the disease is so far advanced as to prevent her from further plying her trade. That the Government should pay for the cure of women under such circumstances, seems to me and to others to be a waste of money, also to be indirectly an encouragement to prostitution, without even the pretext of providing immunity from disease. To be in the least degree effective, there must be some power of detention in hospital until the women are pronounced free from disease, and for this power at least I think we should earnestly strive.

I trust, moreover, that the same wisdom which, in times past, has guided the executive of the Royal Albert Hospital, will still be exerted to find some method by which the work may be more satisfactorily carried out, both morally and physically. We, as members of an influential society extending throughout the United Kingdom, can, in this matter, as in others, do much to correct errors and to form a healthy public opinion; and I still live in hopes that the common-sense of the nation will, before long, in some shape or other reimpose those Acts which we are convinced were on all grounds so beneficial to the community.

NOTE ON THE CHEMISTRY OF STROPHANTHIN.

By THOMAS R. FRASER, M.D., F.R.S.,

Professor of Materia Medica in the University of Edinburgh.

SINCE my former communications, in which several facts relating to the chemistry of *strophanthus hispidus* have been stated, I have completed a systematic examination of various parts of this plant, and more particularly of the seeds. Reserving a detailed description of the results of this examination, I propose now to mention only a few of these results in a brief form.

The active principle to which I have given the name "strophanthin," occurs most abundantly in the seeds. By a very simple process, consisting essentially of the separation of oil by means of ether from the alcoholic extract, I obtained some years ago a crystalline body, having great pharmacological activity, and possessing the characteristics of a glucoside. In subsequent experiments, however, although the same process was followed, a well-marked crystalline product was not always obtained, and it soon became evident that this difference was due to some difference in the condition of the seeds which had been operated with. Thus, from seeds collected by the late Bishop Mackenzie about 1868, and also from seeds sent to me by Mr. Buchanan, of Blantyre, East Africa, in 1881, I had no difficulty in separating an active principle in the form of well-marked minute crystals; but from seeds obtained from Mr. Buchanan in 1885, and also from seeds liberally placed at my disposal by Mr. Moir and by Messrs. Burroughs and Wellcome last year, I failed to obtain an equally definite crystalline body. I also found that the body obtained by the process formerly described, whether in well-defined crystals or not, was resolvable by acetate of lead into at least two bodies, one of which is an extremely active glucoside, and the other an acid, for which I would suggest the name "komic acid." It having become apparent, therefore, that the strophanthin first described is not a simple substance, attempts were made to improve the process, so as to separate strophanthin in a more pure form than I had originally succeeded in doing. The result of these attempts has been the adoption of a process whose essential steps are the following:—

Starting with the product obtained by the earlier process, it is dissolved in water, tannic acid is added to the solution, the tannate is digested with recently precipitated oxide of lead, and then extracted with rectified and proof spirit. This extract is dissolved in a small quantity of rectified spirit, and the solution is precipitated by ether. The precipitate is finally dissolved in weak alcohol, and through this solution carbonic acid is passed for several hours, by which means