quantities or small proceeds only from a limited section of the population. If now we turn to the statistics of crime, pauperism, and insanity, we shall find a result which may appear startling.

The statistics of the insane hospital show a great and progressive increase of patients from 75 in 1850-51 to 685 in 1891-92. In regard to indoor paupers the ratio is slightly lower than that of the neighbouring States:

Ratio of paupers per million of population :	1880.	1890.
Maine	2,319	1,756
Other States non-prohibitive	2,339	1,790

In regard to outdoor paupers, the census attaches to Maine a number very considerably in excess of the average. As regards prison population, Maine has a low but decidedly increasing ratio, which comes out especially clearly in the case of the juvenile offenders in reform schools:

Ratio per million of population in reform school :	1880.	1890.
Maine	176	256
Average in other nine North-Eastern States	469	425

In Kansas—another State in which prohibition dates from 1881—the United States census tells us that there were more prisoners in its penitentiary and county gaols in proportion to its population in 1890 than it had in 1880, and that, of all the neighbouring States, Kansas had in 1890 absolutely the largest ratio of prisoners to population.

In Iowa, the third State in which prohibition has been most effectually carried out, we are told¹ that opium dens are found as the alleged result of prohibition, and that "in one small town where prohibition was so effectually enforced that, when the bishop of the diocese visited it, an intended celebration of the Sacrament had to be abandoned because no wine could be obtained. My informant, whose testimony was unimpeachable, was told by a physician practising here that the use of opium in the place was a positive curse; he had twenty or thirty cases on his hands of persons suffering from the habit, both men and women."

The above data strongly suggest that any lasting prohibition, other than the dictates of a man's own conscience and sense of self-respect, may do more harm than good, for when not a fashion, excessive drinking can only be looked upon as a symptom of a debilitated or depraved nature, which, without access to drink, will show itself in other ways, and, if artificially kept sober, will tend to perpetuate and widen the circle of its depravity.

On putting before ourselves the broad question, How can we improve the health of the race? many may reply that the health of the race is being improved, as is shown by the fact that the individual living now has, on the average, a longer life than one living twenty years ago. This increased longevity does not necessarily imply increased innate healthiness, but may, and in point of fact does, imply increased amelioration of surroundings alone. Freedom from disease does not imply robustness of constitution. We have no foundation, therefore, for assuming that because the average longevity of the race has increased during the last half century we are more robust than we were. The evidence is quite the other way.

In the Registrar-General's reports we have ample data for drawing at any rate rough general conclusions as to the progress of disease amongst us. In Report 54, Table XVII, are the annual death-rates, from various causes, given per million of population, and arranged in groups of five years from 1858 to 1890. We have there a history of thirty years, and even in that time a notable change in this history is to be observed. In the first group of diseases are those due to micro-organisms, and in all cases, except that of puerperal fever, a diminution of disease to a very marked extent is to be observed. Consumption and scrofula share in this decrease.

In the second group are deaths that may, to a great extent, be classed as the results of carelessness, want of management, neglect, and ignorance, such as convulsions, diseases of dentition, parturition, and registered accidents. These, too, as one would expect, diminish yearly in a country where surrounding comforts and a sense of responsibility are on the increase.

When we turn to the third group, that of constitutional disease where the hereditary tendency comes in, we find an in-

crease in almost all the hereditary diseases. A tendency to an increase of neurotic affections is shown by an increase in the deaths from nervous diseases, suicide, and intemperance. A large increase is to be observed in the diseases of the respiratory system, due in part to the increasing number of tuberculous patients, who, kept from inroads of microbes, nevertheless, readily fall a prey to other affections. There is, too, an increase in diseases of the circulatory system, in cancer, diabetes, and other constitutional diseases. It is evident, therefore, that, while preventive medicine and modern civilisation are removing the microbe and diminishing the dangers of childbearing and child-rearing, those who are spared fall a prey to some one or another form of constitutional disease.

In the chart from the Registrar-General's report we find that deaths from old age are less and less frequent, indicating that we are permeated by less healthy constitutional strains, and in a table compiled by Longstaff² we find that this is conclusively borne out. In this table we get the deaths from all causes in 1876-80 as compared with 1861-70. We find (in table) that while the death-rate is being lowered for all ages up to 40 (in women up to 45), after this the death-rate is increased.

The tendency of events is, therefore, to remove selective agencies whereby people escape death, and live in greater numbers through the child-bearing period, but this has gone quite far enough, and it may be modified to produce a different result. Why should the microbe select? Why not public humanity and public reason, since selection there must be? War may be waged with the microbes, provided at the same time that other selective agencies are used to replace them. Is it not our duty, by boldly facing facts, and publicly stating them, to endeavour to bring about such strong public opinion as will force people to look upon the production of children of feeble or depraved strains as an injury not only to the person of the child, but to the welfare of the State.

(To be continued.)

THE FUNGUS KINGDOM.

Abstracts of Three Lectures delivered in the Theatre of the Royal College of Surgeons.

By CHARLES B. PLOWRIGHT, M.D., F.R.C.S.

PHYCOMYCETES; ASCOMYCETES; BASIDIOMYCETES; HYMENOMYCETES.

THE increased attention given to the study of fungi especially from a biological point of view is one of the features of a scientific education in the present day. One of the difficulties which the novice encounters is the cumbrous terminology with which the science of botany in general and mycology in particular is overloaded. While anatomical facts and physiological phenomena must necessarily have distinctive names, it is most desirable that these should not be unnecessarily multiplied. It is a great mistake to imagine that because a man has learned the meaning of some few dozen technical terms, he has therefore become a botanist. Science is apt to be hindered rather than helped by a too prolific nomenclature. One of the most important groups of fungi is the phycmycetes, or moulds. They are characterised by their minute size, and to the ordinary observers are apparently unimportant. They are, however, an exceedingly interesting family in many ways. Moulds multiply themselves in many ways, and afford some of the best marked instances of sexual reproduction. Moulds are both saphrophytic and parasitic. Amongst the latter the salmon disease and the potato disease are only too well known. Horticulturists are familiar with another pest—"the damping-off of seedlings;" while the young medical man who has to cure a case of ringworm in a fortnight, in order that "the child may go back to school," will have his work cut out. All these conditions owe their existence to moulds. The various fungi causing these diseases were described, and it was pointed out with regard to the ringworm

¹ *Op. cit.*, p. 170.

² *Studies in Statistics*, p. 256 and 257.

fungi that, judging from analogous plant diseases, it is very probable several species have to be dealt with. Amongst the ascomycetes some botanists place the so-called sprouting or yeast fungi (saccharomyces), one member of which, *Oidium albicans*, is so well known to us. The parasitic ascomycetes include the fungi which cause the peach blister—"bladder" or "pocket plums"—the vine and the hop mildew, the larch disease, the canker of apple trees, and the caterpillar sphaeria. To the same group belongs the fungus which furnishes us with ergot. The interesting family of lichens in which the parasite and its host are mutually beneficial to one another was also described. The basidiomycetes, like the other groups, contain both saphrophytic and parasitic species. Amongst the last named the Uredineæ and their associates, the Ustilaginæ stand prominent in causing the rust and mildew in wheat, as well as smut and bunt, diseases of economic importance, and not mere scientific curiosities. The large family known as the hymenomycetes was the subject of the last lecture, of which the mushroom is the best known and certainly the most highly appreciated member in this country, but which also contains such harmful species as the dry rot fungus and various tree-destroying parasites. After describing the gasteromycetes, the puffballs, the *Nidulariæ*, the curious phalloidæ, the course concluded with an account of the remarkable life-history of the myxomycetes, which presents so many analogies to the animal kingdom that some botanists have gone so far as to rechristen them the mycetozoa.

ENTERO-VESICAL FISTULA TREATED BY LAPARO-ENTERECTOMY.

FRANCIS T. HEUSTON, M.D., F.R.C.S.I.,

Surgeon to the Adelaide Hospital, Dublin; Professor of Anatomy, Royal College of Surgeons in Ireland.

WHEN consulted in a case of rare occurrence one naturally looks to published cases for guidance. In this case I found very valuable information and much assistance from the perusal of Mr. Harrison Cripps's monograph, *The Passage of Air and Faeces from the Urethra*, and it was with surprise I found such a small proportion as 9 of the 63 cases mentioned by him were due to malignant ulceration, as I was under the impression that a very much larger proportion of cases were due to this condition. I cannot but think that this is owing to a large proportion of the cancerous cases not being published.

As owing to his investigations Mr. Harrison Cripps considers laparotomy impracticable, the publication of this case may be of service to surgeons, as showing that at least in a certain number of cases successful operation may be entertained by abdominal section with removal of the diseased or implicated portion of bowel and suture of the vesical opening.

In March, 1891, a medical gentleman, aged 36 years, consulted me under the following circumstances: In March, 1890, he had a severe attack of influenza, from which he apparently recovered fully, but in October of the same year he was affected for the second time, and subsequently never regained his strength fully. In December he was much troubled by pain in the hypogastric region and the internal aspect of the thighs, this being soon followed by frequent painful micturition and tenesmus.

In January, 1891, he sailed as ship surgeon to America, although feeling feverish, with bad appetite and generally out of sorts, accompanied by severe continuous pain in the lumbar region, irritability of the bladder, and frequent micturition; during the voyage he noticed what he believed to be faeces in the urine. On the return voyage his symptoms became so aggravated that he was unable to leave his bed, the pain in his hypogastric region and scalding during micturition being very severe; his bowels were confined and when relieved by medicine, which gave a liquid stool, faecal material was always to be noticed in the urine. On his return to Liverpool he consulted a surgeon who recommended rest, so he came to Dublin and remained under medical treatment until I saw him.

The patient, full bodied and stoutly built, stated he had

not lost much weight since the commencement of his illness; his pulse was 80, regular and of good volume; his bowels had a tendency to constipation but were readily moved by medicine; he had a furred tongue. The urine was acid, light in colour, specific gravity 1012, with a faint cloud of mucus and a slight deposit of phosphates, but no faecal material could be discovered in the specimen examined. With the concurrence of his medical attendant the patient was placed under the influence of chloroform, and a full examination of his rectum made, but no tumour or communication with the bladder could be discovered. A Thompson's sound was now passed into the bladder, which was found to be somewhat rougher than usual, but no other abnormal evidence could be obtained. Milk injected through the sound did not pass into the bowel, although considerable pressure was resorted to. A few days after this examination a large simple enema containing a small quantity of sodium salicylate was administered; this did not give rise to more pain than one would expect from the use of a large enema in a healthy condition of the bowel. Within a few minutes the patient was requested to micturate, and the urine tested by perchloride of iron, when a relatively large quantity of the sodium salicylate was found to be present.

Fearing the milk test employed in the case of the bladder was not delicate enough, a solution of sodium salicylate was injected into the bladder, on a subsequent occasion, but no evidence of its having passed into the bowel could be obtained.

As the result of this examination, taken with the previous history, the case was diagnosed as a simple ulcerative communication between the superior fundus of the bladder and the large intestine in the region of the sigmoid flexure, and that this communication was valvular in its nature, allowing material to pass from the bowel to the bladder, but not from the bladder to the bowel. Hoping that the opening, which was apparently of small size, might be induced to close without resorting to operative procedure, the patient was kept in the horizontal position, and was given food of the most nutritive nature in small quantities and in such form as was most readily absorbed. He was also given opium in such quantity as to arrest the peristaltic action of the bowel; in addition, an attempt was made to keep the bladder in a condition of contraction by tying in a catheter; it was, however, found that the catheter gave rise to such irritability of the bladder and constitutional disturbance that it had to be removed in thirteen hours.

This treatment was continued for ten days, and although the bowels acted, no faecal material passed through the bladder. It was, however, noticed that a much larger quantity of gas passed from the bladder when the urine was voided than had been the case before he was placed under this treatment. A change then occurred, and faeces appeared in the urine in a relatively large quantity, which gave rise to much irritability of the bladder and constitutional disturbance, vomiting being frequent. A consultation was held, when it was determined that operative interference was indicated. To this the patient gave a willing assent, only stipulating that on no account should a colotomy be performed. The abdomen was opened by an incision through the linea alba extending from about an inch below the umbilicus to about an inch above the symphysis pubis. On examining the posterior aspect of the bladder, I found that it was adherent near its fundus to the sigmoid flexure of the colon, immediately above the brim of the true pelvis; this adhesion was of such a character as to be readily broken down by my finger, and the two structures separated. I now found an opening into the bladder about the size of a pea, through which the mucous membrane of the bladder protruded; the surface of the bladder was revived for about half an inch around this opening, and the raw surfaces brought into contact by silk sutures, taking care that the sutures did not include the mucous membrane; a second row of sutures were then passed so as to bring the serous membrane over the wound into apposition.

On turning my attention to the bowel, I found a mass of dense tissue implicating the bowel in its entire circumference to the extent of 2 inches. About the centre of this mass, on its anterior aspect, I found an opening into the bowel corresponding to that which existed in the bladder.