monitory symptoms, I concluded he was going to have scarlet fever, but that was not the case. Two other children have had sore throats, with enlarged tonsils covered by patches of lymph, accompanied by low fever. They are now (February 3) invalids, having enlarged tonsils, furred tongues, &c.

MR. ADDISON ON THE PHYSIOLOGY OF CELLS.

TO THE EDITORS OF THE PROVINCIAL MEDICAL JOURNAL.

GENTLEMEN,—In a communication which you did me the honor of inserting in your Journal a few weeks ago, in answer to an article in the "British and Foreign Medical Review," and which occasioned the rebuke of your correspondent, "Phylax," I stated that *Messrs. Powell and Lealand* had furnished me with one of their one-eighth object-glasses for my microscope, and that it had enabled me to confirm the *bases* of all my published conclusions. I also stated that our Association had printed a *second series of Researches*, with illustrations, to be published in the forthcoming volume of the Transactions.

Since that period one or two very important facts have come to my knowledge, which I wish to make known as additions to these researches. With Powell's object-glass, in combination with one of my own original eye-pieces, giving a magnifying power of 700 diameters linear, I can always see in the interior of numerous mucous globules, found in a clear, transparent drop of saliva, myriads of molecules, in the most active state of motion, almost reminding me of the busy scene of an ant-hill. The globules in which this remarkable appearance presents itself are always perfectly circular, and have an uniform molecular aspect, free from any conspicuous granules, nuclei, or discs. This observation has directed my attention more particularly to the cause of the innumerable and various appearances presented by pus globules; and I now (with the same object-glass and eye-piece) can always find in *pus* a number of globules filled with active molecules, not differing in any respect from mucous globules. I have frequently seen these globules ruptured by contact with water, and myriads of the most minute active molecules floating, or rather wriggling, away from them. The irregularity in shape or outline, and the appearance of conspicuous granules, nuclei, or discs, either in these globules or in mucous globules, is evidently connected with the cessation of the active movements of these minute molecules. The perfectly circular and uniformly molecular mucous globule is a living cell; while those globules presenting the characters which have hitherto been considered characteristic of pus globules are, in my opinion, or according to my observations, dead and partially ruptured ones; therefore, *pus globules* (limiting the application of the term) may be considered as *degraded* forms, in comparison with those globules or cells which are alive, but in no other sense; for I challenge any microscopical observer to show the formation of a *pus*, or of any other globule, by the exudation or coagulation of the fibrine of the blood.

In the article in the "British and Foreign Medical Review," to which I have before referred, the author states that there is something too specific in the *cha-*

racter, if not in the *appearance*, of pus globules, for him to adopt the conclusion that they are altered, colorless blood corpuscles. Now, the only possible way that I am aware of, in which pus globules can present a sensible character, is through the medium of the microscope; if this be true, then it is clearly impossible to separate, as regards these minute objects, a character from an appearance; but, without some further explanation, I am unable to understand the passage, unless it should appear that I have anticipated the announcement of this *character*, by pointing out the distinctions between the living and the dead cells.

Those who may have read my Experimental Researches, in the last volume of the Transactions, will no doubt remember that I have frequently described active movements in the interior of cells (particularly at pp. 267, 268, &c.,* and the observations there related have on two occasions been since verified); I can now fix upon a particular, and at all times readily procurable, class of objects, in which these phenomena may be evident to other observers; and I state it without hesitation, as the result of numerous observations, that, with a magnifying power of 700 diameters, having a clear and good definition, numerous globules, filled with the most minute molecules, in an energetic state of movement, may be seen in every drop of clear saliva; and similar objects may be seen in every drop of pus after it has been mingled with a drop of water.

I have no desire to shrink from fair and impartial criticism; on the contrary, at the risk of being somewhat premature, I shall here state the facts upon which my views and conclusions, shortly to be published, are founded; and I invite all who feel any interest in the advancement of the *science* of medicine to an experimental examination of the truth of these facts, if they wish to overturn my conclusions.

1. The colorless blood corpuscles circulate through all the capillary blood channels of the body.
2. They greatly abound in all situations where the process of nutrition is active.
3. They adhere to the tissues which form the boundary of the blood channels.
4. They enlarge by contact with water, and are then seen filled with minute molecules.
5. They discharge myriads of active molecules when ruptured by *liquor potassæ*.
6. The fluid part of their contents is of a fibrillating, plastic, or mucus-like nature; if the plastic element *fibrillates*, serum is the fluid result; if it does not fibrillate (but remain incorporated with the fluid serum), then the product is a mucus.
7. Myriads of active molecules may be seen in mucous globules (*i. e.*, in incipient epithelial cells), and also in numerous globules found in those products which go under the generic appellation, *pus*.

These are the chief of the facts which, to my mind, clearly connect the very highly organised, firm, molecular, and colorless blood corpuscles with the process of nutrition and secretion, and identify them with pus and mucous globules. The conclusions I have drawn from these facts are, I admit, quite incompatible with our present physiology; nevertheless, I am ready to vindicate them, because they are little more than a statement of facts, and because they appear to me to

* Pages 37 and 38 published separately by Mr. Churchill.

combine into a compact whole a *new physiology* with the results of pathological anatomy, and thereby more clearly indicate the principles which ought to guide us in the practice of medicine. By a new physiology, I mean a physiology that can maintain the dignity of a science independent of the chemical props which appear to be necessary to sustain the present tottering fabric.

I remain, Gentlemen,
Yours obediently,
WILLIAM ADDISON.

Great Malvern, Feb. 26, 1844.

DONCASTER UNION MEDICAL OFFICERS.

TO THE EDITORS OF THE PROVINCIAL MEDICAL JOURNAL.

GENTLEMEN,—A second letter from "Provincial," published in your Journal for last week, has confirmed the opinion which I had previously privately expressed to you, that I am one of the individuals alluded to in that first letter, which charges two medical practitioners with "holding offices in the Doncaster and Rotherham unions, who possess neither medical, surgical, nor pharmaceutical knowledge from any source."

I certainly do not feel myself called upon to answer the sarcasms of "Provincial," so long as he conceals himself beneath his anonymous garb; when, however, he chooses to come forward, and ask those questions as a man of honor, and a gentleman, I pledge myself to prove to him, by such evidence as he cannot dispute, that I am, in every sense of the word, a regular practitioner, with the single exception of not being a member of the college, which, you are aware, at the time I entered the profession, was not a *sine qua non* for those who intended themselves solely for country practice; and I will convince him that I commenced my studies purposely for the medical profession at an early age, served a regular apprenticeship, passed a year as assistant to a surgeon of considerable eminence, finished my studies at St. Thomas's and Guy's hospitals, and, on the 1st of June, 1815, besides having private patients, was in full practice as parochial surgeon in a very extensive district.

I remain, Gentlemen,
Yours most respectfully,
JAMES BURMAN, Surgeon.

Wath-upon-Dearne, March 6, 1844.

THE BENEVOLENT FUND.

TO THE EDITORS OF THE PROVINCIAL MEDICAL JOURNAL.

GENTLEMEN,—Having already made some observations in your Journal respecting the proposition of Dr. Lee, in reference to the Benevolent Fund, and having then stated what I considered to be the original constitution of the Association, I should not again have thought it necessary to have approached the subject until our next annual meeting, had not I found the following sentence in a second letter from Dr. Lee, bearing date Feb. 6. In it he says, "I am decidedly of opinion that district branches will never effect the amount of good their benevolent

projectors contemplate. Our strength lies in union. A district branch can do but little towards the attainment of so God-like an object as our Benevolent Fund is intended to promote. Look at the number of applicants, and how small a portion of aid to each such district, though well meant, charity will yield."

Now, let us examine how far Dr. Lee is justified in his opinion—but first, let it be remembered that Dr. Lee's proposition is that the sum of four shillings be added to the annual subscription, and that this, according to his calculation, will yield an annual income of £350 to the Benevolent Fund.

One feels unwilling at any time to draw comparisons, but more especially is this disinclination felt in matters of benevolence; nevertheless, when one looks, upon the one hand, at the result of the calculation of Dr. Lee, and finds that an increase of four shillings upon the subscription of every member of the Association would only produce to the Benevolent Fund an annual income of £350—and when, upon the other hand, he finds from the last report of the West Riding Medical Charity, that the distribution of charity for the present year alone amounts to £206, he is constrained to compare, and having compared, to conclude, that the report furnishes us, not with a "melancholy," but with a pleasing truth, and that we have good reason to hope, not "that district branches will never effect the amount of good their benevolent projectors contemplate," but that by a little kindly feeling and good management such *may* be effected.

In writing thus in favor of district branches, and in opposition to a constrained and compulsory benevolence, it cannot be supposed that I myself object to a *voluntary* contribution of five shillings to the Benevolent Fund, inasmuch as that is my annual subscription; but being a member of the above-mentioned charity, and knowing the workings of a well-conducted district branch, I feel bound to encourage, so far as I can, the more general formation of such throughout England.

I speak, therefore, disinterestedly, and in doing so I confess that I feel that Dr. Lee does not make a fair quotation from my letter when he, without noticing the context, merely remarks that "Dr. Inglis is glad that every member of the Association is not called upon to do likewise," *i.e.*, to make a compulsory addition of *four* shillings to his annual subscription of £1 ls. Surely Dr. Lee cannot have forgotten his own language in a former letter; it was as follows:—"Preferring deeds to words, I have added *four* shillings to my annual subscription, and call upon every member of the Association to do likewise." It was, therefore, in contradistinction to this that I made use of Dr. Lee's own words, adding to them the negative, inasmuch as I feared lest a compulsory increase of subscription of either nine shillings or of four might have "the effect," as Dr. Heygate justly remarks, "of withdrawing many annual subscriptions."

Without any further observations, I beg to conclude by again offering my best wishes for the welfare of the Benevolent Fund, so long as the contributions to it are voluntary; and instead of calling upon the members for any stated sum towards it, I would quote from the letter of Mr. Phenè (Jan 20), and say that "it is very desirable that each member should con-