the following considerations tentatively—more as a suggestion for future inquiry—for it is quite possible some other interpretation of these new facts may eventually be found, and as Dr. Archibald Leitch says: "It is difficult to see how the observations can be put in a line with many facts already known." It is usually admitted that the nucleus is the most vital and essential part of a living cell, the surrounding protoplasm playing a subordinate part in the way of protection and nutrition, its chief function no doubt being to elaborate the special food material (specific colloids) in the service of the nucleus. When a cell is injured or mechanically divided, the portion attached to the nucleus, even if it be the smaller part, recovers and reproduces the whole cell again, but a part containing no nucleus or portion of a nucleus perishes. The nucleus selects from the proteins of the cell body the special colloids it requires for growth and mitosis. Now in Dr. Gye's experiments it seems quite possible that in the process of grinding up the minced tumour with sterile sand, not only are the cancer cells broken up, but also many nuclei disintegrated, thus setting free in a very finely divided state minute fragments of living nucleoplasm. It is impossible to say to what degree of subdivision this might proceed, but it is quite conceivable that the results of this fragmentation might easily be of filterable dimensions. Now one of the specific characters of nucleoplasm is its power of auto-synthesis, if the medium in which it exists contains the necessary ingredients. May not the smallest fragment of living nucleoplasm automatically grow if in contact, under suitable conditions, with the specific proteins of the disintegrated cancer cells, acting as the accessory factor, and may it not organize itself eventually into a biological unit if such specific requirements are present? Seeing that the nucleoplasm is the bearer of hereditary qualities, there is no reason why it should not in fact—in suitable surroundings—reproduce the identical cancer cell. One may legitimately ask, Has Dr. Gye in his experiments merely broken up into filterable fragments the cancer cell—that is, into nucleoplasm (acting as the virus) and cytoplasm (the accessory factor)—and, after filtration, reunited them under suitable conditions for growth in the body of the animals experimented on? This would account to some extent for the impotence of the virus alone and the specificity of the accessory factor; and may not the cultured bodies photographed indirectly by Mr. Barnard be the biological units of nucleoplasm? I would incidentally point out here that the recently discovered method of producing cancer experimentally, by painting the backs of mice with solution of tar (which contains a relatively high percentage of phenols and cresols), would appear to bring about the very conditions inimical to any hypothetical cancer-producing germ. In conclusion, I think it must be disquieting to the public mind to be led to think that cancer, after all, may be due to the fortuitous invasion of a ubiquitous germ capable of attacking all and sundry under suitable conditions, and irrespective of the fact that they may have led perfectly healthy and normal lives. I am therefore of opinion that the points herein raised should be considered before it is taken for granted from Dr. Gye's discovery that cancer is a germ disease.

DR. A. T. BRAND (Driffield), in the course of a communication on the same subject, writes: It strikes me as extraordinary that speculation as to the cause of cancer can still take place. To be told that hyperplasia may merge imperceptibly into cancer, that cancer can be caused by the tarring of rats, or by means of gall stones, etc., is like being told that pneumonia is caused by exposure to cold and wet, or that anthrax is caused by a shaving brush, or tetanus by a splinter of wood. Those who speculate on the origin of cancer completely fail to realize that it is a typically specific disease which cannot be caused by any mechanical agent or any intrinsic condition of the tissues, but only by a specific agent. They also fail to realize that the true cause of any disease must be present in every case without exception, and they further fail to grasp the fact that *post* and *propter* are not synonymous terms. That cancer is due to an extrinsic agent, as all specific diseases are, is logically established, and as cancer does not attack the healthy body, it is obvious that most of the alleged causes are simply and entirely predisposing. Of these predisposing agencies irritation (chronic or continuous, of all kinds) is probably the most potent, as has been known for many centuries. The only possible specific extrinsic agent, which alone fulfills the axiom of universal applicability, is a parasite, and this has been demonstrated by Dr. Glover of Toronto, now of New York, years ago, and confirmed by Dr. Young of Edinburgh. These two research workers, unknown to each other, made, independently, exactly the same discovery, even to the fact that the parasite is pleomorphous, existing in four forms, of which one is ultra-microscopical and filter-passing. It is interesting to note that Dr. Gye of London has dared to break away from the great antiparasitic majority of research workers and has stated his conviction that cancer is a specific disease. He discovered the fourth (filter-passing) form of the cancer parasite and declared it to be the cause of the disease. It seems that he has failed to discover the other and visible forms. He insists that there is a "specific factor," which must be present before the germ can attack successfully. There is, however, no "specific factor." As stated already, cancer does not attack the healthy body. The soil must be prepared for the specific agent, hence what I have always termed the "condition precedent" must exist. This is induced by many things which I need not again enumerate, among which continued irritation is a powerful one. For Dr. Gye's "specific factor" I substitute "vulnerability." That cancer can only be caused by its own specific agent, an extrinsic parasite, must commend itself to anyone who realizes to what an enormous extent parasitism is responsible for the causation of disease. There would be no difficulty in appreciating this were we endowed with microscopic vision. One Manchester pathologist, who is bitterly opposed to the parasitic origin of cancer, has advanced the theory that the cancer cell is itself the parasite. This was originally suggested by the late Sir Henry Butlin, but it is manifestly untenable, since it will not account for the first or original case of cancer, where there was no cancer cell to cause the disease. The cancer cell, *per se*, is perfectly harmless, just as harmless as an empty Browning automatic. In the first case it is the intracellular parasite which acts, and in the second the live cartridge. The first cancer was caused by the parasite itself.

OCCIPITAL PAIN IN INFLUENZA.

DR. R. MURRAY BARROW (Long Sutton, Wisbech) writes: I have found that the severe occipital pain radiating over the scalp, which is very common with influenza, responds frequently to cloths rung out in hot lotio plumbi. Whether the pain is due to an irritation of the nerve roots or a synovitis of the cervical joints I am not certain.

AN IMPROVISED URETHRAL BOUGIE.

MR. E. MUIRHEAD LITTLE, F.R.C.S. (London), writes: Sir Herbert Waterhouse's appreciative note on the late Mr. Bloxam reminds me of an experience which may be of interest to students of the history of minor surgery. Circumstances early honoured me with the acquaintance of Mr. Bloxam, and when I was studying for the final F.R.C.S. examination he kindly allowed me to attend his out-patient clinic at the Lock Hospital and also welcomed me to his wards at Charing Cross. On one occasion, when I was accompanying him round his beds, he came to a case of stricture of the urethra. Discussing with his students methods of treatment, he mentioned that Mr. Wormald of St. Bartholomew's used to use a quill pen as a bougie with considerable success. This statement caused some surprise among his audience, and Bloxam thereupon undertook to demonstrate the method. He sent down to the secretary's office for a long quill pen, for at that time—over forty years ago—these implements were not quite obsolete, and having stripped off all the barbs from the rachis or stem, except a small tuft which he wrapped around the end, and having well oiled the whole, he triumphantly passed it into the bladder through a tight stricture. The improvised bougie did not look at all a suitable or comfortable instrument, but the patient made no complaint. I have not anywhere read of this bit of old surgical handicraft, nor have I ever heard it spoken of except by Mr. Bloxam, and I think that it may be thought worthy of rescue from oblivion.

THE COST OF BOROCAINE.

WITH reference to the remark by Drs. Harrison Butler and Gillan in their article on the clinical value of borocaine in ophthalmology (JOURNAL, January 16th, p. 83), that "the cost of borocaine makes it an impossible drug for hospital use," the British Drug Houses, Ltd., state that the list price of borocaine is 23s. an ounce, while that of cocaine hydrochloride is 46s. an ounce (these prices being subject to discount to hospitals), and the cost of the drug contained in 1 c.cm. of a 2 per cent. solution of borocaine is therefore one-fifth of a penny.

A BLACKBOARD ANATOMICAL CHART.

A CONVENIENT chart for teaching anatomy has been designed by Miss E. D. Ewart and produced by Messrs. H. K. Lewis and Co., Ltd., of Gower Street, London, W.C.1. Skeletal outlines are painted in white on flexible blackboard cloth, mounted on rollers, the length of the chart being 4 ft. 10 in. and the width 3 ft. 10 in. An arrangement of side tapes enables the lower portion of the chart to be raised to a convenient level, and the two sides show the front and back of the head, trunk, and limbs, the outlines being slightly larger than life-size. The positions of arteries, muscles, nerves, and organs can be drawn on the chart in coloured chalks and rubbed off as from an ordinary blackboard. It is thus well suited for instruction in surface markings, by way of supplement to the living model. The chart will be sent on approval to recognized teachers who apply for it to the publishers. The price is £2 2s., carriage extra.

INTESTINAL DIVERTICULA: *Correction.*

OUR apologies are due to Dr. E. I. Spriggs and Mr. O. A. Marxer for an error perpetrated by that imp of mischief, the printer's devil, after the proof of their article had been passed (correctly) for press. In page 133, column 2, the sixth line from foot of page should begin a paragraph and read as follows:

> In the third stage of established diverticulitis the

The line which appears in the published JOURNAL is a duplicate of the first line under the figure in the same column, and was accidentally misplaced during final correction.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 41, 42, 43, 46, and 47 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 44 and 45.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at pages *43* and *44*.