

sclera, and in which therefore the pressure required to keep them open is only a little greater than atmospheric pressure. That the direction of the flow is as stated above has been shown by injection of colouring matter into the aqueous, and subsequent examination of where the colouring matter had penetrated to. See the *Encyclopédie Française d'Ophthalmologie*, 1905, p. 139.

Hence there is no question of uphill flow, and Dr. Henderson's sneer at equations and formulæ is uncalled for.—I am, etc.,

Knock, Belfast, Aug. 23rd.

JOHN R. GILLESPIE.

THE FORMOL-GEL REACTION IN SYPHILIS.

SIR,—The experience of Mr. Murray Stuart (August 13th, p. 263) in relation to the uselessness of the above test is similar to our own in this laboratory.

Professor Beattie and I examined some sixty serums with this method and controlled them by the Wassermann reaction. In the Wassermann test we obtained double positive, positive, and negative results, but the formol-gel method gave negative results in all cases. A few of the tubes seemed to show a more or less solid column, but this was purely a surface tension phenomenon, for on shaking the tubes the fluid nature of the contents was at once obvious. The tubes showing the apparent increase in viscosity did not correspond to the serums giving positive Wassermann reactions.—I am, etc.,

F. C. LEWIS,

Assistant Lecturer in Bacteriological Methods,
University of Liverpool.

August 23rd.

AUTO-SERUM IN THE TREATMENT OF DISEASE.

SIR,—I have seen lately in the lay press a reference to a method of treatment for cancer which is ascribed to Dr. Caudier of Paris. This is said to consist in the injection under the skin of serum derived from the patient's own blood, which presumably contains substances which, when thus reintroduced into the system, strengthens its defence against cancer. It is apparently claimed by Dr. Caudier that the effect is rapidly to improve the general condition of the patient, and to reduce the size of the tumour.

I have not observed any allusion to this method of treatment in any recent medical periodical, but in an address on "The specificity of cancer and the general principles of its treatment and prophylaxis," which I delivered to the East Yorks Branch of the British Medical Association, and published in the *Lancet* of May 28th, 1910, I made the following statement:

"On the other hand, should the causal agent be found to be a bacterium, success may follow the exhibition of a cancer vaccine, prepared after the methods of Wright; or of an anti-cancerous serum. Until such serum can be procured from an individual cured of, or rendered immune to, the disease, the effect of auto-serum might be tried. This may contain a self-generated antitoxin; or, if it contains the toxin itself, its injection in small amount may act as a vaccine and stimulate the leucocytes to increased phagocytic activity."

Although I confined myself to an abstract statement, without mentioning any concrete example (for a reason given later), I had in mind experiments made with auto-serum in 1907 and 1908, in cases of cancer occurring in my practice.

In September, 1907, a man, aged 67, was admitted to the Driffield Poor Law Infirmary suffering from disease of the left elbow. He said he had been discharged from a city infirmary in the neighbourhood as incurable, having refused offered amputation. His elbow presented the appearance of a huge fungating epithelioma, a mass covered with suppurating granulations, discharging freely and emitting a most vile odour. There was great pain present which prevented sleep.

I decided to experiment on this man by injecting auto-serum and explained to him what would have to be done, expressing the hope of relief if, not of cure. He was as eager as myself to try this treatment, and gladly consented.

Ten c.cm. of blood were drawn from the right median basilic vein by a large antitoxin syringe and allowed to coagulate in a sterilized test tube. The serum was then poured off, centrifuged, and stored in 0.5 c.cm. ampoules and sealed up. The ampoules were then sterilized. On September 25th, 1907, 0.5 c.cm. was injected hypodermically into the posterior aspect of the right forearm, and a similar dose was given weekly until the supply was exhausted. Fresh supplies

of blood were drawn as required and treated as before, and the injections were continued until twenty-three had been given, the last being given on February 23rd, 1908. After several injections there was marked improvement. Pain disappeared entirely and rapid diminution of the mass set in, the discharge gradually ceased, and by the time that the last injection was given only a few small granulations remained, the elbow being normal in size.

Though greatly elated by the success of this treatment I felt it desirable to make certain of the nature of the disease. A few granulations were detached and sent to the Clinical Research Society. To my great chagrin the report stated that the disease was tuberculous.

As my thoughts and efforts were concentrated upon the treatment of cancer, I was too greatly disappointed to care to report the successful result of the action of auto-serum in tuberculous disease, and it may be that further experiment by others will confirm my experience and that another weapon may be provided against a disease which is quite as malignant as cancer, or disprove it.

In several cases of undoubted cancer, in private practice, I attempted the same treatment, but in every case the patient refused to permit me to obtain a second supply of blood, and I was thus prevented from bringing my experiments to a positive or negative conclusion.

The fact that one was only a general practitioner was too heavy a handicap, but, in hospitals for cancer, with proper laboratory facilities, this method of treatment might be thoroughly tested, since at least some of the patients might be found to be as willing, in their own interests, to co-operate with the surgeon as my patient was. At the same time success is, in my opinion, only probable on the presumption that the parasite responsible for cancer is a microphyte and not a protozoön. In the latter case some mineral parasiticide is indicated such as is successful in syphilis. Molybdenum has not been tried, and if an oscol of this metal can be prepared I should be glad to experiment with it, and there is abundant material.—I am, etc.,

A. T. BRAND, M.D., C.M.,
Late Major R.A.M.C.

Driffield, E. Yorks, Aug. 8th.

CERVICAL RIBS.

SIR,—In an annotation in the *BRITISH MEDICAL JOURNAL* of August 27th, p. 332, on "Rib Pressure and the Brachial Plexus," the statement is made that "Sir William Thorburn in 1904 was the first in this, and, perhaps, with the exception of Borchardt, in any country to apply x rays in the diagnosis of a cervical rib."

In the *BRITISH MEDICAL JOURNAL* of June 8th, 1901, p. 1395, is a report on a case of cervical ribs by T. E. Gordon, F.R.C.S.I., illustrated by drawings from two radiographs of two cases. One case was radiographed for Mr. Gordon before August 27th, 1899, and a cervical rib found on each side.—I am, etc.,

Liverpool, Aug. 27th.

C. THURSTAN HOLLAND.

VACCINE THERAPY AND CYSTITIS.

SIR,—The discussion on cystitis in the Section of Neurology at the Annual Meeting of the British Medical Association, Newcastle, reported in the issue of the *JOURNAL* for August 27th, p. 305, seems to call for some comment from one who—to quote the words of the opener—is sceptical as to the value of vaccine therapy (in cystitis), but who is, perforce, bombarded daily with specimens of foul urine, with urgent requests for a vaccine.

The real trouble is this, that the practitioner nowadays is apt to fly to a vaccine before submitting his patient to an expensive course of surgery and radiology. In this he is wrong from the scientific point of view, and I venture to say that no responsible pathologist would suggest a vaccine for the treatment of a bacterial infection of the urinary tract (I dislike the limitation "cystitis") until investigation into its cause had been made. Personally I always either refuse to make a vaccine at all or point out that it will be useless unless it is regarded as an adjunct to, and not a substitute for, accurate surgical diagnosis. But vaccine may be bought from a shop, though consequently discredit of vaccine therapy as a science not infrequently follows. I think that pathologists should refuse to supply a stock vaccine without bacteriological examination of the patient and some knowledge of the clinical history of the case.