

TABLE III.—Showing the Effects of Antiseptics upon the Growth of Bacteria when the Antiseptic is diluted with Pus.

<b>Experiment I</b> (4 parts of pus, 1 part of antiseptic).				
Carbolic acid	...	...	1:240—	...
Hydrogen peroxide (10 vol.)	...	...	...	1:480+
Iodine	...	...	1:1000—	...
Biniodide of mercury	...	...	...	1:2000+
...	...	...	...	1:1000+
<b>Experiment II.</b>				
Iodine:				
3 parts antiseptic, 1 part pus	...	...	1:1600—	...
1 part " 1 " "	...	...	1:1600—	...
1 " " 3 parts pus	...	...	...	1:1600+
1 " " 4 " "	...	...	...	1:1000+
Biniodide of mercury:				
3 parts antiseptic, 1 part pus	...	...	1:800—	...
1 part " 1 " "	...	...	1:900—	...
1 " " 3 parts pus	...	...	1:800—	...
1 " " 4 " "	...	...	...	1:1600+
...	...	...	...	1:1000+
<b>Experiment III</b> (4 parts blood corpuscles with staphylococcus-infected leucocytes, 1 part antiseptic).				
Carbolic acid	...	...	1:200*—	...
Chloramine	...	...	...	1:300+
...	...	...	...	1:100+
<b>Experiment IV</b> (1 part blood corpuscles, 1 part antiseptic).				
Hypochlorous solutions (1:200 available chlorine):				
Dakin's solution	...	...	1:2† (?)	...
Eusol	...	...	1:2—	...
Carbolic acid	...	...	1:160*—	...
...	...	...	...	1:320+

\* Subcultures on agar gave no growth.

† Subcultures on agar gave a little growth.

it had not—that is, organisms grew better (1) in pus from an infected wound than in sterile pus to which a suspension of microbes was added; (2) in the infected blood when it had been incubated so as to allow phagocytosis to take place. This would lead us to expect that antiseptic dressings would be especially useful (1) in the earlier stages of an infection, before there is much pus; (2) to prevent the growth of organisms which might obtain access to a wound during the dressing. The following are the conclusions which I consider these experiments justify: (1) The ultimate strength of the antiseptic being the same, the greater the proportion of pus the less the inhibition of growth. (2) Where pus is present in the proportion of 4 parts to 1 of antiseptic, organisms may grow freely when the following are the antiseptics used: Mercuric salts 1 in 200, carbolic acid 1 in 60, iodine 1 in 200, boracic acid 1 in 20, chloramine 1 in 20, hypochlorous solution 1 in 200 available chlorine. Organisms also grew when salt solution 20 per cent. was used. (3) Since organisms grow in pus in which antiseptics are present in the strengths indicated above, it is utterly unreasonable to expect any of them to diffuse into the tissues to such an extent as will give a strength sufficient to inhibit the growth of microbes, still less to kill them. (4) The pyogenic organisms are, as regard their growth in pus, among the least affected by the ordinary antiseptics.

The results obtained with hypochlorous solutions are of particular interest at present, inasmuch as eusol is being advocated for intravenous injection in cases of septicaemia. If they have any beneficial effect in the blood, it is clear the explanation cannot be found in direct bactericidal action.

When these experiments are reviewed as a whole, it becomes plain that in appraising the value of an antiseptic the purpose for which it is used must be taken into account. For instance, for washing out a wound, when the antiseptic would be in great excess, hypochlorous solutions are very potent, and carbolic acid comparatively weak. On the other hand, for an application in a dressing, when the pus would tend to be in excess, hypochlorous solutions are practically useless, whilst carbolic acid, although it has the disadvantage of interfering with the activity of the leucocytes, is fairly efficient.

Again, it becomes clear that, upon the evidence the experiments supply, antiseptics cannot do as much as is claimed for them. They certainly cannot sterilize the tissues subjacent to the surface of a wound, and, indeed, cannot be depended upon to sterilize an accessible surface, although they kill many of the organisms on it. Their use, therefore, depends on whether there is any advantage in this. It would seem that there is, for it can hardly be possible that the depth and intensity of the tissue infection are independent of the proportion and virulence of the organisms in the surface pus. If, therefore, these can be reduced, even temporarily, without at the same time unduly interfering with physiological processes, it is an important gain. This, which is in fact the most important object in dressing wounds, can be done by means of antiseptics, and herein lies their rôle in antiseptic

treatment. If we expect more from the antiseptics at present available, we shall be disappointed.

In conclusion, I would express my grateful acknowledgements to those with whom I have been associated under the auspices of the Army Medical Service, and of the Medical Research Committee; but in particular to my former chief, Colonel Sir Almoth Wright, although I have come to conclusions divergent from many of those at which he has arrived.

## REFERENCES.

<sup>1</sup> BRITISH MEDICAL JOURNAL, January 1st, 1916. <sup>2</sup> British Journal of Surgery, January, 1916.

## Memoranda:

## MEDICAL, SURGICAL, OBSTETRICAL.

## SEVERE CEREBRAL INJURY, ASSOCIATED WITH LAUGHTER.

On two occasions last summer I saw what I considered an unusual feature connected with the condition of two patients who were brought into an advanced dressing station suffering from severe head injuries. The injuries were in the lower occipital region of the skull, and were caused in one instance by shrapnel, in the other by high explosive. The shrapnel had caused a small fracture of the occipital bone, through which blood oozed, and the high explosive some bruising of the back of the head and neck. The men suffered from very severe shock and were quite unconscious of their surroundings, but exhibited the rather striking combination of a rambling and muttering delirium, associated with mild and frequent laughter.

There was here the suggestion of a continuous stimulation of the emotional centre for laughter, and as laughter is a modified form of respiration, an injury to some area near the respiratory centre in the floor of the fourth ventricle might account for the condition. The difficulty is that high explosive tends to spread its energies, and other centres of the brain may have suffered from concussion.

According to Sherrington (Schäfer's *Textbook of Physiology*) the respiratory apparatus is in the higher groups subservient to the emotional and mental expression, and he states that the bulb possesses inhibition to a great extent.

Nitrous oxide over-stimulates the respiratory centre and causes laughter, but, as in the case of chloroform and alcohol, the accepted opinion is that the preliminary excitement is due, not to stimulation of the brain areas, but to lessened activity of the functions of control and restraint. But a direct stimulation of the emotional centres is possible, and injury may reveal the truth where experimental work is impossible.

Edinburgh.

J. M. MACPHAIL, M.D. Edin.

## EARLY DIAGNOSIS OF WHOOPING-COUGH.

With reference to the memorandum from Dr. H. W. Jacob (April 22nd, p. 589), I would recommend him to have a blood count made in all suspected cases of whooping-cough. In all true cases of whooping-cough there will be found a marked lymphocytosis, and this is present some considerable time before the development of the characteristic cough. It is also helpful in the diagnosis of those cases in which the characteristic cough is absent or not heard. I am unfortunately not able to give any references to the literature on the subject.

J. F. CROMBIE, M.D., Major R.A.M.C.

British Expeditionary Force.

THE *Boston Medical and Surgical Journal* states that when the United States undertook the treatment of leprosy in the Philippines there were about 600 cases in the islands. The island of Culion, which afforded excellent opportunities for agricultural work, was chosen as a place of segregation. Four hundred dwelling-houses, a theatre, a town hall, a school, and a harbour were built, and provided with a water supply and with sewerage and lighting systems. The colony now numbers about 3,500 lepers. They are given all possible liberty, organize their own police force, elect their own mayor and council, and take some care of the island. Attempts to interest them in cultivation of the land were indifferently successful, and a plan to induce them to take up cattle breeding—cattle being insusceptible of leprosy—is now under consideration. Treatment by chaulmoogra oil has given encouraging results; and already twenty-three lepers have been discharged as cured.

auto-intoxication consequent upon an almost exclusive meat diet.

The high fatality of epidemic typhus among the more prosperous classes has been commented on by numerous writers, especially Graves (*Clinical Medicine*, pp. 59-60) and Creighton (*History of Epidemics in Britain*, vol. ii, p. 100 et seq., and especially pp. 290-1). Jeanneret-Minkine's observations fall into line with those of earlier writers. Davy and Brown's figures (*BRITISH MEDICAL JOURNAL*, November 20th, 1915) are consistent with the fatality-rate upon the medical officers being above the general average, but the absolute numbers are small.

The point is of both theoretical and practical interest, which is my excuse for calling attention to it.—I am, etc.,

M. GREENWOOD, Jun.,

Captain 1st London (City of London) Sanitary Co.  
Loughton, May 2nd.

### THE "SOLDIER'S HEART" AND ITS RELATION TO THYROIDISM.

SIR,—I do not think that Dr. Harry Campbell is quite correct in his supposition that Sir James Barr is the first to draw attention to the hormonal origin of the symptoms of "soldier's heart."

Some months ago, in the *Lancet*, January 8th, 1916, Dr. Herniman-Johnson and Dr. Percival White pointed out the fact that "soldier's heart" is really due to Graves's disease, and therefore can be cured by x-ray treatment. At the discussion on "irritable heart" at the Royal Society of Medicine on January 18th, 1916 (reported in the February *Proceedings of the Royal Society of Medicine*), I brought forward the same view, but got no support from the meeting. In the *Lancet* of April 8th I again urged the same fact, and quoted cases cured by x rays to prove the contention.

That the thyroid is not primary in Graves's disease, but that toxic influences play a large part in causing thyro degeneration, few will deny.

Sir James Barr's paper is very valuable as again pressing this connexion. His method of treatment is considerably less laborious than x-ray treatment, which latter, however, gives very satisfactory results.—I am, etc.,

FLORENCE A. STONEY, M.D., B.S.Lond.

London, W., May 1st.

### INFANTILE MORTALITY.

SIR,—When Dr. S. G. Moore said in his Milroy Lectures that there was nothing to prevent the continuance in the decline of the birth-rate, he surely did not mean that it would continue declining until it equalled the death-rate. He must know that the birth-rate of Australia and New Zealand ceased falling some ten or more years ago, and that ours may be expected to do the same when serious poverty has been eliminated. The scheme which he favours of public assistance to necessitous mothers and infants will merely ensure that the further decline of our birth-rate will be mainly among the people with over 30s. a week.—I am, etc.,

London, S.W., May 8th.

BINNIE DUNLOP, M.B., Ch.B.

In an address delivered at the second scientific Pan-American Congress at Washington on January 7th, Mr. Frederick L. Hoffman stated that the estimated annual mortality from cancer in the continental United States is 80,000 (32,000 males, 48,000 females). Excluding cases of disease of the generative organs and the breast, the rates for the two sexes in the registration area of the United States, are about the same. The rate is somewhat higher in urban than in rural centres, the difference being partly accounted for by deaths in institutions. The death-rate in thirty southern cities was 80.3 per 100,000 of population among whites and 55.2 among the coloured. There has been a considerable increase in the negro rate since the Civil War, particularly in cancer of the uterus. A comparison of the cancer mortality rates in the eastern and western hemispheres seems to show a decrease in prevalence corresponding with diminishing distance from the equator. For the eastern hemisphere the rate was 98.3 and for the western 78 per 100,000 of population. There would seem to be a very close relation between the frequency of cancer and the degree of civilization. The disease was extremely rare among the North American Indians, the Eskimos, and West Indian negroes.

## Universities and Colleges.

### UNIVERSITY OF CAMBRIDGE.

The following candidates have been approved at the examination indicated:

SECOND M.B. (Part II, Pharmacology and General Pathology).—B. F. Armitage, H. Barbash, P. F. Bishop, C. V. Braimbridge, E. P. Brockman, G. E. Burton, T. A. Butcher, S. P. Castell, C. B. Cohen, A. J. Copeland, E. C. Curwen, J. C. Davies, C. C. R. Downing, G. A. Fisher, W. S. Gross, A. C. Halliwell, J. C. N. Harris, A. T. Hawley, W. M. Heald, T. L. Hillier, S. C. Ho, P. C. Livingston, A. G. F. McArthur, E. G. D. Murray, P. M. Neighbour, J. W. McK. Nicholl, F. C. Odling, R. A. Olphert, F. P. N. Parsons, R. H. Reece, R. H. O. B. Robinson, N. Rumbold, E. D. Spackman, H. F. Squire, W. S. Sykes, M. S. Thomson, G. H. Ward, J. P. Wells, R. L. Williams, D. W. Winnicott, J. M. McC. Wright.

### UNIVERSITY OF EDINBURGH.

#### GENERAL COUNCIL.

At the statutory half-yearly meeting of the General Council, on May 3rd, resolutions were adopted recording the Council's appreciation of the services of late Principal Sir William Turner, Emeritus Professor Sir Alexander R. Simpson, Emeritus Professor John Wyllie, Dr. Allan Jamieson, and Professor Hardie.

The draft ordinance for the Degree in Education, which will be one of the most comprehensive in any English-speaking university, was approved.

The report of the Finance Committee showed that the total of matriculated students for the year 1914-15 was 2,417 (1,941 men, 476 women). There had been a marked decrease both of men and women in all the faculties except that of science, where there were eight more women than in the previous year. There was an increased deficit in the General University Fund, the deficiency now amounting to £12,814—a fact which showed the need for unappropriated donations. The increase in bursary funds ought not to be allowed to distract attention from this urgent and more general need.

A motion to provide that all future appointments of principals and professors should terminate either at a definite age limit or after a definite period of office, was adopted, with the addition of the words "unless the university shall request such principal or professors to continue in office thereafter for a further period."

The name of Mrs. A. B. Lothian (née Maccallum), M.B., Ch.B., D.P.H., was added to the Business Committee.

### ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

At its quarterly meeting, on May 2nd, the Royal College of Physicians of Edinburgh resolved to offer its diploma of membership to Major Harold Edgar Priestley, Captain Alan Cunliffe Vidal, and Captain James Lafayette Lauder in appreciation of their conduct as physicians at Wittenberg.

## Obituary.

### JAMES BROWN BIRD, M.D. EDIN.,

PHYSICIAN, CUMBERLAND INFIRMARY.

DR. J. B. BIRD, of Carlisle, died of influenza on April 22nd at the early age of 47. He was born in 1869 in Berwickshire, and received his professional education at Edinburgh University; he was Stark Scholar for post-graduate research in 1888-9, and graduated M.B., and C.M. in 1890. After holding a junior resident appointment at the Crichton Royal Institute, he was appointed house-physician to the Brompton Hospital for Consumption, and his studies in that institution afforded the subject for the thesis on phthisis for his M.D. degree, conferred upon him in 1897. In 1891 he became house-surgeon to the Cumberland Infirmary, Carlisle, and when the period of office elapsed he set up in practice in that city. He was placed on the honorary staff of the infirmary in 1897, and became full physician in 1903. He was largely instrumental in founding the Cumberland Sanatorium, for which he was secretary for many years, and he was for a time president of the Burns Club. In 1906 Dr. Bird was Chairman of the English Division of the Association and President of the Border Counties Branch in 1910. In 1896, when the annual meeting of the Association was held in Carlisle, he was active in its organization. He was universally respected by his fellow citizens, and at the funeral, on April 25th, a large and representative gathering assembled at the service held in St. Paul's Church, Carlisle. He was held in high esteem by his professional brethren, and his death is greatly

DR. HENRI Secrétan, who died on March 5th at the age of 60, was recognized as the leading authority in Switzerland on accident assurance. He was a son of the distinguished philosopher, Charles Secrétan, and, after studying at Lausanne, Geneva, and Pisa, took his doctor's degree at the Paris Faculty in 1885. In the same year he began the practice of medicine at Lausanne. He embodied the fruits of his experience in a number of writings on acute abscess of the lung, the treatment of chronic serous effusions, hydrophobia, the treatment of wounds and other subjects. Twenty years ago, when assurance against accidents first came within the sphere of practical politics in Switzerland, he turned his attention to that new field of medicine. He collected a number of articles into a volume, entitled *L'Assurance contre les accidents*, founded wholly on his own experience; it has passed through three editions. Secrétan was a man of wide culture and varied intellectual interests. He wrote on the depopulation of the Roman Empire and the Germanic invasions; the end of the empire of the West and the beginning of the Middle Ages; Christian propaganda and persecution, and other historical and sociological subjects.

## The Services.

### EXCHANGE.

M.O. Wessex Division, at present under canvas at Hursley Camp, would like to exchange with Territorial M.O. serving in Portsmouth district. Address No. 1750, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

## Medical News.

WE regret to have to record the death of Dr. Arnold Lea, surgeon to St. Mary's Hospital for Women and Children, Manchester, which occurred on May 7th. We hope to publish some account of his life in an early issue.

THE Government of Panama has established a national department of Uncinariasis or Tropical Anaemia for the organization and conduct of an active campaign against the disease in the territory of the republic.

DR. PHILIP GELL GARRETT and six more nurses have gone out this week to Corfu, under the auspices of the Wounded Allies Relief Committee, of Sardinia House, Kingsway, W.C., to the relief of sick and wounded Serbian soldiers.

THE first Pan-American Congress on Childhood will be held at Buenos Aires in July next. Dr. Julieta Lauteri Renshaw is president of the organizing committee. The work of the congress will be divided among seven sections, which deal with infant legislation, industrial legislation, hygiene, education, psychology, aid to the mother and the child, and sociology.

A MEETING of mobilized chemists was held at Angoulême on April 23rd to consider the question of founding a general union of the chemists of France. The object of the proposed organization is to form a combination of all French chemists for the study of questions relating to chemistry in general, and in particular to enable French chemical science to compete successfully with the powerful German organizations.

At the meeting of the Röntgen Society on May 2nd, Major Robert Wilson of the Canadian Medical Service showed an enclosed tungsten arc lamp which he has devised for the treatment of wounds by ultra-violet radiation. His idea, he said, had been simply to produce a lamp much more cheaply constructed than the ordinary arc lamp in use at some of the hospitals, and more effective than the Finsen-Reyn lamp. As a result of experiment, he found it best to have a pure tungsten base as one electrode and carbon cored with tungsten powder as the other. The tungsten powder was made into a paste and forced into the central cavity of the carbon, being reduced in the intense heat which followed when the arc was formed. Various pairs were tried but nothing answered so well as these. The spectroscopic results showed the issue of radiation having wave lengths of 2,000 Angström units, and the arc had the advantage of being steady and free from sputter. He had several diaphragms available, but one great desideratum was to have the application of the rays upon the part as cold as possible. In order to direct the radiation, he used a mirror having such a curvature as to give a very slightly divergent ray at a distance of 12 in. from the light source.

## Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Artiology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

### QUERIES.

#### LOCAL ENDARTERITIS.

A. F. F. asks whether it is possible to have endarteritis absolutely blocking the axillary artery in its first part. No evidence elsewhere.

\* \* We have been unable to find any case recorded in which a strictly localized endarteritis has blocked an artery the size of the axillary. Thrombosis following local injury seems the likeliest cause of blockage in the case; or embolism; or spread of thrombosis from aortic aneurysm—though this would be excluded if the subclavian artery was unaffected.

### ANSWERS.

#### LEUCODERMA.

DR. S. J. ROSS (Bedford) writes in reply to "L.R.C.P.": In two cases of leucoderma which have been under my care benefit was derived by the use of a lotion of mercury perchloride (1 in 1,000). In the syphilitic variety antisyphilitic remedies will prove of value.

### LETTERS, NOTES, ETC.

#### COLD FEET AND STUFFY HEADS.

DR. E. LLOYD OWEN (Criccieth) writes: Professor Leonard Hill, F.R.S. (writing in the BRITISH MEDICAL JOURNAL for April 8th), probably rightly regards a cold in the head (and he might add diphtheria and most other infectious diseases) as most commonly due to infecting microbes transmitted in masses to a person through the saliva spray or mucous spray of another present in more or less close proximity in the same room, that room being most frequently at the time imperfectly ventilated, and the microbes perhaps finding a favourable opportunity to commence operations after their new host has gone out into the cold air.

Such an imperfectly ventilated room would, in Dr. Hill's opinion, be one which is over-heated (this, however, being possibly accompanied by a cold draught at the level of the feet), and in which the air is over-humid and also too still and monotonous. Dr. Hill having found that, while the rate of cooling at the foot level in the House of Commons was high, that at the head level was low, remarks that this condition of things (cold feet and stuffy head, as he terms it), is not the best for our legislators.

But is he right? It may be granted that the conditions may not be altogether comfortable, but one would think, unless the feet are so cold as to distract the attention of the owners from the matter of debate, that by allowing blood to fill the brain (not the nasal mucous membrane merely), cold or at least cool feet would tend to mental alertness. Stuffy noses do not necessarily mean stuffy brains.

Are not cool feet and a warm brain the antithesis of the conditions that obtain when one is in bed asleep? Is there not during sleep a certain amount of anaemia (in spite of the horizontal attitude), resulting from determination of blood to the feet, and indeed to every part of the body covered by the bedclothes? My own experience is that to remain in a warm, luxurious bed, with only the head out, even after a prolonged sleep of eight or nine hours, is not very favourable to hard thinking. I fancy that I have read of some eminent authors who testified that some of their best work had been done with cold feet (or rather, while their feet were cold).

So I should say that cool feet and warm heads are, instead of the worst, the very best conditions for our legislators. On this matter depends the question whether fresh air inlets should be placed as low as possible (as hitherto in the House of Commons) or at a higher level.

### SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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