## REPORT CX.

# ON THE DIFFERENCE IN CONTENT OF IMMUNE SUBSTANCES IN BLOOD SERUM AND PLASMA.*

BY

GEORGES DREYER, M.D. PROFESSOR OF PATHOLOGY, and E. W. AINLEY WALKER, M.D., LECTURER IN PATHOLOGY, IN THE UNIVERSITY OF OXFORD.

[*Abstract.*]

SERUM and plasma obtained from rabbit's blood have been compared as regards their agglutinating action on the *Bacterium coli* before, during, and after immunization with that organism.

It is found as a general proposition that the *plasma* of an animal is more strongly agglutinative than its *serum*, owing, as we believe, to the loss of some of the agglutinin of the latter in consequence of an "absorption" of agglutinin by the constituents of the clot formed in the blood from which the serum is derived.

This general proposition being fully established by the observations made, it follows that if the serum is at any period found to be as strong as the plasma, and still more if it is found to be the stronger of the two, its increase in agglutinating power must be due to some factor partially or completely absent from the plasma, which *adds* enough agglutinin to balance, or more than balance, as the case may be, the loss by "absorption."

In the observations now recorded the serum has been found always to be stronger than the plasma during the period of *latency and rise* in the immunity curve of agglutinin production. And the percentage difference between the two is shown to be greatest during the earlier portion of this period, that is, at a time which corresponds to the time of maximum leucocytosis following the inoculation.

It is, therefore, suggested that the factor in question causing increase in the agglutinins of the serum is the leucocytes of the blood, which are allowed to break up in the sample used for the preparation of serum, but are rapidly separated from the plasma in an extremely powerful centrifuge.

When there is no longer leucocytosis in the blood, and the activity of agglutinin production in the body begins to wane, the amount of agglutinin derived from the leucocytes present no longer overpowers or even equals the loss by "absorption"; and from this point onwards the plasma always shows the higher values.

These observed facts explain the disagreement in the results obtained by previous workers, who paid no regard to the particular stage of immunity with which they were dealing when they made their comparisons between the serum and plasma.

The view here put forward is strengthened by the observation, several times repeated, that if in an immunized animal a new increase in agglutinin production be induced by the inoculation of a totally different micro-organism, this *non-specific* stimulation rapidly results in the serum again becoming stronger than the plasma in specific agglutinating power. We are unable to offer any explanation of this result unless it be dependent on the increase in the activity and number of the leucocytes present in the blood.

But if this explanation be the correct one, it affords strong evidence that the leucocytes and leucocytic tissues (bone marrow, endothelia, etc.), some, or all of them, are concerned in the development of immunity, and are the source, or, at any rate, *a* source, of origin of the specific antibodies—agglutinins.

Incidental evidence has also been obtained which shows that plasma, as contrasted with serum, is relatively destitute of *complement*. And this affords additional support to the view that the complement of blood is derived from its leucocytes.

*Communicated to the Pathological Society of Great Britain and Ireland, at Leeds, on January 8th, 1909.

## REPORT CXI.

# OBSERVATIONS ON THE PRODUCTION OF IMMUNE SUBSTANCES.*

BY

GEORGES DREYER, M.D., PROFESSOR OF PATHOLOGY, and E. W. AINLEY WALKER, M.D., LECTURER IN PATHOLOGY, IN THE UNIVERSITY OF OXFORD.

[*Abstract.*]

IF an animal (rabbit) which has been immunized against the *Bacterium coli*, and whose immunity has passed its maximum by a longer or shorter interval of time, receive an inoculation of a different organism, a new rise occurs in the curve of specific *coli* agglutinins in its blood serum. But if the interval which has elapsed before this inoculation is made be of such a length that the immunity of the animal has ceased to be measurably greater than it was before immunization was originally begun, no perceptible increase in agglutinins occurs.

That is to say, that the cells and tissues which are thrown into activity by the new inoculation are precisely those which were already occupied in the formation of agglutinin, and whose stimulation, therefore, leads to its increased production.

Now the tissues which are known always to be stimulated by bacterial inoculations are the leucocytic tissues of the body (bone marrow, lymphatic glands, endothelia, etc.). The observations recorded, therefore, tend to show that these tissues are the site, or *a* site, of production for the specific antibodies—agglutinins.

The question whether possibly other tissues also are concerned in the production is not here considered. At present we are not aware of any clear and satisfactory evidence in its favour.

*Communicated to the Pathological Society of Great Britain and Ireland, at Leeds, on January 8th, 1909.

# Memoranda:

## MEDICAL, SURGICAL, OBSTETRICAL.

### INDUSTRIAL SYPHILIS.

THE notes of a case of syphilis published by Mr. Snell in the JOURNAL of December 5th, 1908, are of paramount importance, and afford another piece of evidence for the compulsory notification of syphilis as an infectious disease. It reminded me of a similar case I had early in that year.

A young woman, aged 22, engaged as a coatmaker, consulted me for a sore she had had on her lip for some week or ten days; it was increasing in size. On the first visit I did not suspect anything of a specific nature, thinking it was simply an infected herpetic vesicle; and also I knew her and her family to be most virtuous. But at her next visit the appearance of the sore raised my suspicions, and upon examination I came to the conclusion that it could be nothing else but a primary chancre. This was afterwards confirmed by a consultant, and the train of symptoms which followed, but they were of a mild character. When I made up my mind as to the correct diagnosis, I endeavoured to find out how she became infected. I put the question as guardedly as possible, but could not elicit anything definite. I told her I should like to see her mother, when, as delicately as possible, I put the case before her, asking particulars about her companions and her work. Her companions at home were above suspicion, but at her place of business it was different; she was engaged in her occupation in a workroom where there were several women engaged, and each one had a different part of the coat to make, and in its various stages was passed from one to another; the girl herself suggested that the sore might have been produced by dye in the cloth with which she was working. To get the hem of the cloth into a workable condition she was in the habit of pressing it against her chin and passing it across several times, so as to make it flat and even. I then inquired as to the health of her fellow workpeople, and the majority

were very respectable, getting good wages at hand-made work. She told me that the one from whom she received the garment had not been well for some time, and had sores in her mouth and other such symptoms that made it certain as to the source from whence she had become infected. This was corroborated by her mother, who made inquiries; though she never suspected the disease, I impressed upon her the gravity and the length of time for treatment.

I maintain, in the interests of the community at large, that syphilis should be made notifiable—as we see here how the innocent suffered—anyway in industrial centres.

Birmingham. CLEMENT BELCHER.

# Reports

ON

## MEDICAL AND SURGICAL PRACTICE IN THE HOSPITALS AND ASYLUMS OF THE BRITISH EMPIRE.

### CRAY VALLEY COTTAGE HOSPITAL.

ABDOMINAL LACERATION: EXTRUSION OF VISCERA: OPERATION: RECOVERY.

(Reported by T. W. BAILEY, Honorary Surgeon.)

THE patient in the following case was admitted under my care in the afternoon of July 31st, 1908, with the following history: The same day, after a dinner of bread, meat, and beer, and a large Spanish onion, he had been riding a bicycle. He was wearing old-fashioned front-flap trousers, and in the left-side pocket of these was carrying a quart bottle containing tea. The bottle got in his way several times, and finally jammed between his body and the handle bars, throwing him on to his right side. On picking himself up, he found the bottle sticking into his stomach, through the band of his trousers, and broken at the shoulder. On withdrawing it gut followed. He was conscious of no pain from first to last, but collapsed on trying to get to the door of a house close by. This was the house of my partner, Dr. Curtis, who, finding him almost immediately afterwards, packed the protruded viscera with warm boracic lint, and brought him in a cab to the hospital, a distance of some two and a half miles.

*State on Admission.*—On arrival he was much collapsed, and the abdominal parietes were found torn through almost transversely, the right extremity of the tear being about an inch above and to the left of the umbilicus. Filling and extruding from the wound was a mass of viscera the size of a cottage loaf, consisting of part of the stomach, the transverse colon, and some omentum. In the stomach was a 2-inch wound through which food was exuding in considerable quantity.

*Treatment.*—Operating with the help of Drs. Curtis and Bennion, and the patient being under ether, I attended to all bleeding points first. There had been considerable haemorrhage both from the torn parietes and the stomach. The latter was then washed out through the wound in its anterior wall, and the opening closed by continuous suture. The peritoneal cavity was then thoroughly irrigated. The next step was to cleanse and pack back all intestine, which necessitated some enlargement of the wound in order that the peritoneum, more freely torn than the muscles, might be properly sutured. The external wound was then closed with three tiers of stitches, room being left for a drainage tube of large calibre.

*Progress and Result.*—For the first twenty-four hours the man remained greatly collapsed, but after that he improved, and so rapidly that the drainage tube was left out in a few days. The wound, in short, healed by first intention, and the man had an uninterrupted recovery.

REMARKS.—My reason for reporting this case is, of course, the severe nature of the injury and the fact that a considerable time must have elapsed during which the man had a considerable quantity of his abdominal contents outside his abdomen more or less exposed. The happy issue of the case was no doubt in a measure due to the protruded mass of intestine effectually plugging the abdominal wound, and thereby preventing the escape of the stomach contents into the general peritoneal cavity.

THE thirty-sixth meeting of the Balneological Congress will be held at Berlin under the presidency of Professor Brieger from March 4th to 8th.

# Reports of Societies.

## MEDICAL SOCIETY OF LONDON.

*Monday, January 11th, 1908.*

CHARTERS J. SYMONDS, M.S., F.R.C.S., in the Chair.

*Mediastinal Growths.*

DR. R. CECIL B. WALL, in the course of a paper on mediastinal growths, said that sarcoma of the mediastinum was a disease chiefly of the middle period of life. It was generally associated with pulmonary symptoms, of which cough and dyspnoea were the chief and haemoptysis not uncommon. Symptoms due to the bulk of the growth were often present, such as stridor, dysphagia, and oedema from venous obstruction. Pain which could be ascribed to metastatic deposits was seldom a prominent symptom. The signs usually indicated either a pleural effusion, which was not uncommonly brown from altered blood pigment, or the presence of a solid mass in the mediastinum or lung. Evidence of impairment of function of various structures of the mediastinum was frequently found. Cancer of the mediastinum occurred somewhat later in life. Pulmonary symptoms were less commonly prominent, and metastatic deposits in bones or implicating nerves usually brought the patient under the notice of the physician. Signs of pulmonary or mediastinal disease were often absent; if present, they tended to indicate obstruction of a bronchus or effusion resulting from pleural metastases rather than massive deposits in the lung or mediastina. In Hodgkin's disease and acute lymphatic leukaemia the presence of a mass of lymphatic gland tissue in the thoracic cavity was merely accidental, but when present might produce symptoms and signs owing to its bulk. Cancer of the pleura seemed to be a disease of later life tending to produce symptoms, as in the case of mediastinal cancer, from metastatic deposits and signs of pleural effusion.

*Lymphocythaemia.*

Dr. LEONARD GUTHRIE and Dr. W. D'ESTE EMERY, in a paper on a case of lymphocythaemia in a boy aged 6 years, said that although lymphocythaemia so-called was undoubtedly a definite and separate disease as shown by the *post-mortem* appearances, it was doubtful whether it could be diagnosed with certainty by examination of the blood during life. Excess of lymphocytes was held to be pathognomonic of the disease, but it must be remembered that in early childhood lymphocytosis might be present in many other morbid conditions of the blood, all of which were protean in character so far as the results of examination of the blood were concerned. With regard to terminology, it seemed paradoxical to describe the case brought forward as one of lymphocythaemia when the total leucocyte count only amounted to 2,000 per c.mm., yet though not in excess in the blood, the lymphocytes, if indeed they were lymphocytes, were deposited in incalculable numbers in the tissues and organs.

## ROYAL SOCIETY OF MEDICINE.

OBSTETRICAL AND GYNAECOLOGICAL SECTION.

AT a meeting on December 10th, 1908, Dr. HERBERT SPENCER, President, in the chair, Dr. ARNOLD W. LEE and Dr. E. J. SIDEBOTHAM read a paper on the *Bacteria of the puerperal uterus.* They had made observations on a series of fifty-eight patients in whom the puerperium was normal. The results of these experiments appeared to show (1) that the uterine secretion after delivery contained organisms in the great proportion of cases after the second day; (2) these organisms closely resembled those found in puerperal infection; (3) streptococci were present in a considerable number of cases, and often showed marked haemolysis; the discovery of haemolytic streptococci in the lochial discharge was no certain indication of the existence of infection. Dr. DRUMMOND ROBINSON thought that the weak spot in the paper had been indicated by the authors themselves. It was undisputed that the cervix always contained micro-organisms, and it appeared to him that it would always be impossible to obtain material from the cavity of the uterus without contaminating such material with micro-organisms from the cervix. Mr. ALBAN DORAN read notes of a case in which a woman, aged 35, subject to irregular menstruation for three years,

# Medical News.

A CONGRESS on therapeutics will be held at Cracow in July of the present year under the presidency of Professor Jaworski of Warsaw.

DRS. PÉDEBIDOU, Labbé, Faisans, Beauvisage, Reymond, and Chautemps were re-elected members of the French Senate on January 9th.

A SOCIETY of radiology has recently been founded in Paris. Its object is the scientific study of the medical applications of radiations in general.

THE Royal Dental Hospital, Leicester Square, has received a legacy of £200, duty free, under the will of the late Mr. William Joseph Topp, of Rotherhithe.

THE Annual Report for 1908 of the Society for the State Registration of Nurses contains particulars as to the movement in the British Dominions, in the United States, Holland, Germany, Denmark, and Sweden.

DR. ROBERT JONES, Medical Superintendent of the Claybury Asylum, has been appointed Lecturer on Mental Diseases in the medical school of St. Bartholomew's Hospital, in succession to Dr. Claye Shaw, who recently resigned the appointment.

THE Lord President of the Council has appointed Francis E. Fremantle, Esq., M.B., F.R.C.S., M.R.C.P., Medical Officer of Health for the County of Hertford, to be a member of the committee appointed to consider the working of the Midwives Act, 1902.

THE Queen has given a donation of £1,000 to be expended in the purchase of extra-regulation articles which will add to the comfort and convenience of sick soldiers in military hospitals at home stations nursed by Queen Alexandra's Imperial Nursing Service.

AT the meeting of the Royal Microscopical Society on Wednesday next, Lord Avebury will deliver his presidential address on seeds with special reference to British plants, at 20, Hanover Square, at 8 p.m. There will be an exhibition of foraminifera dredged from off the coast of Somaliland.

THE secretaries of the Conolly Norman Memorial Committee desire to remind intending subscribers that the list will be closed on January 31st. Subscriptions will be received by W. R. Dawson, M.D., Farnham House, Finglas, co. Dublin, or by J. R. O'Connell, M.A., LL.D., 34, Kildare Street, Dublin, treasurers.

A NATIONAL ambulance dog society (*Société Nationale de Chien Sanitaire*) has been founded in France. The Minister of War, the Colonial Minister, and the Minister of Agriculture are Honorary Presidents. The President is M. A. Lepel-Cointet; the General Secretary, Dr. Granjux. The object of the society is the breeding and training of dogs to find the wounded in war.

THE General Council of King Edward's Hospital Fund for London held a meeting on January 11th. The proceedings, which were purely formal, consisted of the adoption of the resolutions providing for the work of the Fund during 1909 approved at the meeting in December, and the reception from the Prince of Wales of a communication appointing to the various committees the persons mentioned by him in his concluding remarks on the same occasion.

THE British Association for the Advancement of Science meets this year at Winnipeg from August 25th to September 1st. Professor Sir J. J. Thomson, F.R.S., is the President-elect; the President of the Section of Physiology is Professor Starling, F.R.S.; of the Section of Botany, Lieutenant-Colonel D. Prain, F.R.S., I.M.S., formerly Director of the Botanical Survey of India, and now Director of the Royal Botanic Gardens, Kew; and of Anthropology, Professor J. L. Myres, of Liverpool.

THE British Museum completed on Friday a century and a half of existence, for its doors were opened on January 15th, 1759. It was practically founded by a special Act of Parliament passed in 1753 for the purchase of the collection formed by Sir Hans Sloane, the Harleian MSS., and the Cottonian Library. Sloane, who was born in Ireland, was of Scottish extraction, and took the degree of M.D. in France in 1684. He made extensive collections during a three years' visit to the West Indies as physician to the Duke of Albemarle. He was afterwards physician to Queen Anne and to George I, and succeeded Newton as President of the Royal Society.

MR. J. G. BUCKLE, B.A., Assistant Secretary of the Dreadnought Hospital, Greenwich, has been selected from a very large number of candidates to be Secretary of University College Hospital in succession to Mr. Newton Nixon. He will take up the duties of his new post on March 29th. Mr. Buckle was educated at Malvern and Magdalen College, Cambridge; he passed into the Colonial Service, and was appointed to Hong Kong, where he held the office of Assistant Colonial Secretary and Secretary to the Executive and Legislative Council. On retiring from the service he became Secretary to the Vice-Chancellor of London University, and subsequently Assistant Secretary at King's College, London. Being attracted to hospital administration he accepted office at the Dreadnought Hospital, Greenwich, where his relationship with the committee and the honorary medical staff has been of the most cordial nature.

THE Belgian Permanent Committee on Human Alimentation, which was founded on the occasion of the International Congress on Food held at Ghent in 1908, held its first meeting at Brussels on December 23rd, 1908, under the presidency of Dr. A. J. J. Vandervelde of Ghent. Among the objects aimed at by the committee are the organization in Belgium of congresses on food, and the participation of that country in international congresses on the same subject, the study of questions relating to the prevention of fraud, the supervision of the sale and manufacture of food preparations, and the promotion of uniform international methods of analysis. The committee will also investigate the question of human food from the chemical, physiological, technical, commercial, legislative, economic, and social points of view. The committee consists of 50 members representing the scientific as well as the industrial and commercial worlds. There are three vice-presidents, MM. Libotte of Antwerp, Sohier of Liége, and Professor van Laer of Brussels; Dr. Schoofs of Liége is General Secretary.

IN a letter addressed to Sir Alfred Jones, Chairman of the Liverpool School of Tropical Medicine, Mr. R. Newstead, who is engaged in studying destructive insect life in Jamaica, says that the work of the expedition is progressing most favourably. Mr. Wortley, Lecturer in the Department of Agriculture, was appointed officially by the Governor to assist in the investigations. Mr. Newstead says he has already inspected several large cattle-pens in the West, and has made arrangements to see other estates in various parts of the island. He has also sent out 150 tubes to other localities, with the request that ticks be forwarded from various animals. Further, he has issued circulars asking for information regarding cattle ticks. He has a number of eggs from the various ticks, and as soon as the larvae hatch he intends to put them on material which the Government has placed at his disposal. He hopes to make a series of control experiments and test a few of the remedies which are used by the planters. Dr. Prout, C.M.G., and Dr. Hanley, C.M.G., the medical officers attached to the expedition, are pursuing their investigations into the various diseases indigenous to the island.

TRYPANOSOMES are very common in the blood of horses and other animals along the East Coast of Africa generally, so that it is not surprising to learn that they have also been found in Zanzibar. Dr. Alexander Edington, while passing through there, had his attention called to a horse which showed well-marked swelling of the abdomen and sheath, and on examining its blood trypanosomes were found. Inoculations into another horse, an ox, a donkey, and other animals were positive as regards the former two. The length of the parasite as seen in the blood of horses is 15 $\mu$, on an average, and the breadth 1 $\mu$; in size it resembles the *T. dimorphon*, but M. Mesnil, to whom specimens were shown, considers it to be different both from this and *T. congolense*, a somewhat similar parasite. Koch and others have also described trypanosomes in horses from Togoland, and it may be that this parasite is similar to some of these. The whole subject of the classification of trypanosomes in horses and other animals in Africa is in a very unsatisfactory condition, and it is to be hoped that no new name will be attached to this one unless it can be shown that it has real claims to a specific entity. Dr. Edington's paper was read before the Royal Society on November 12th, 1908.

# Contract Practice.

## FRIENDLY SOCIETIES AND MEDICAL CONTRACT PRACTICE.

SIR,—The course adopted by the Denbigh and Flint Division is precisely on the lines advocated by Dr. F. W. Style in the JOURNAL of January 2nd, p. 68, and a recital of the mode of procedure may interest those of your readers who are engaged in contract practice work.

A subcommittee was appointed to draw up a code of rules for the regulation of contract practice as applied to sick and benefit societies within the area of the Division. Invitations to attend a meeting for the consideration of the proposed rules were sent to every medical practitioner resident within the area.

The meeting was well attended and after careful deliberation the rules were adopted. A resolution to the following effect was also passed:

> That in cases where a medical practitioner serves notice on a friendly society intimating that he declines to undertake attendance upon the members of such society, except in accordance with the contract rules adopted by the Division, no other practitioner within the area of the Division shall apply for or accept the same.

Copies of the rules and of the foregoing resolution, together with a request that the recipient would sign an "undertaking" not to accept any contract practice appointment except in accordance with these rules, were sent to every medical man practising within the Division area.

The results have been highly satisfactory, and several instances have come to my knowledge where both members and non-members of the British Medical Association have declined to continue to hold certain appointments except on the terms and conditions indicated, and the unwavering loyalty of their *confrères* has secured to them the retention of the appointments on their own terms.—I am, etc.,

E. D. EVANS,
Honorary Secretary, Denbigh and Flint Division.

Wrexham.

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SIR,—Your correspondent Dr. F. W. Style, in your issue of January 2nd, complains that nothing is done to remedy the grievance of remuneration paid to medical men by friendly societies.

In Newcastle-upon-Tyne and in other places the organization of the British Medical Association is effecting a change, and has so far been successful in its procedure, which, if continued, will gradually eliminate the features objected to.

If Dr. Style cares to communicate with me, I shall be glad to furnish him with some information which may be of assistance to him.—I am, etc.,

GARFORTH DRURY,
Secretary, Northumberland Committee, North of England Branch, British Medical Association.
95, Pilgrim Street, Newcastle-on-Tyne, Jan. 7th.

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M.D. writes: The statistics given in Dr. F. W. Style's letter are interesting and might well be taken to heart by the bulk of the profession, or at least that portion of it which must needs take contract practice to make both ends meet. I cannot help thinking that your correspondent is just a trifle too optimistic as to results of his proposed circular. As long as the "powers that be" are either unable or unwilling to inflict adequate penalties, which shall touch the *pockets* of delinquents, so long will the friendly societies continue to prey on us. Some twelve years ago, when practising further south, I held a friendly society appointment in conjunction with a neighbouring practitioner. We divided the club about evenly and got 5s. a head. The club, thinking no doubt to play off one doctor against the other, decided to offer a lump sum for attendance on the whole club. This lump sum worked out at a fraction over 3s. a head. I of course refused to have anything to say to these terms; but my worthy colleague pouched the whole without even a protest—as I ascertained from the secretary. Would any working man fall so low? I think not. This class of individual must be curbed through his pocket, and until that happy day arrives I should advise Dr. Style to sit tight on any appointments he may hold.

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THE Danish Paediatric Society which was founded last November held its first meeting on December 2nd, when Dr. S. Monrad, Physician-in-Chief to the Queen Louise Children's Hospital, was elected President. Professor Hirschprung was elected a honorary member.

# Public Health AND POOR-LAW MEDICAL SERVICES.

## NUISANCE FROM FLIES.

THE Public Health Committee of the London County Council has issued a further report by Dr. Hamer, founded on observations made during the summer of 1908, on the extent to which a nuisance from flies is produced in London by accumulations of offensive matter. The observations were conducted on lines similar to those followed in the summer of 1907, the results of which have already been noted in the JOURNAL (May 9th, 1908, pp. 1123 and 1135). In 1908, 141 places of observation surrounding nine sets of premises were chosen. These centres consisted of four dépôts where stable manure or other refuse was manipulated, two stable premises, a cowshed, a glue and size manufacturer's premises, and a jam factory. The places of observation were generally kitchens or living rooms occupied by poor people; in these flypapers were hung, the flies caught were counted, and the species identified. The investigations confirm the conclusion that collections of horse manure play a prominent part in the propagation of flies. Commenting on this fact, Sir Shirley Murphy remarks: "The need of a power regulating the sanitary condition of stables; and, further, of strict exercise of the powers for requiring the removal of manure at sufficiently frequent intervals, and upon due precautions being taken with regard to such removal, has been long felt, but this need has been greatly emphasized now that it has become realized that the fly nuisance of cities is to so large an extent due to neglected conditions at stable premises." Dr. Hamer discusses the possibility that there may be a causal relationship between the prevalence of flies and summer diarrhoea; but upon this question no definite conclusion appears to be warranted.

We have also received a strongly-worded pamphlet by Dr. H. E. Armstrong, medical officer of Newcastle-on-Tyne, on the dangers of flies as carriers of disease. He suggests that the Local Government Board should be asked to hold an inquiry into the subject. From Dr. Hamer's report it appears that Dr. Copeman, Medical Inspector of the Local Government Board, is engaged upon an investigation of this nature.

## BORIC ACID IN MILK.

ON December 31st two summonses issued at the instance of the corporation were heard in the Rotherham Borough Court against milk vendors for selling milk containing boric acid. In the first case the analyst's certificate showed that the milk contained a compound in the proportion of 15 grains of boric acid to the gallon. The summons was for having sold milk not of the nature, substance, and quality demanded by the purchaser, and the Town Clerk contended that boric compounds were not natural constituents of the milk, being added as preservatives. Dr. A. Robinson, M.O.H., gave evidence to the effect that boric acid was injurious to health, especially in the case of children and invalids. Taken in any quantity it would cause indigestion, and would after a time produce a rash; in his opinion boric acid was only used in milk which came from dirty dairies, or when the utensils conveying the milk were unclean. The bench imposed a fine of £3. In the second case a dairy company was summoned on similar grounds. The analyst had found crystallized boric acid in the proportion equal to 19 grains per gallon. Dr. Robinson, in cross-examination, said that, although the Board of Agriculture had laid down a standard as to the quantity of milk fat in milk, it had not laid down a standard for preservatives. For the defence it was contended that no case had been made out; the milk was skim milk, and would not be used for invalids and babies; the preservative found in the milk was not present in an injurious quantity; it was suggested that a smaller proportion than 40 grains per gallon was not injurious. The bench imposed a fine of 40s. and costs in this case. The probability of an appeal was intimated.

# Universities and Colleges.

## UNIVERSITY OF CAMBRIDGE.

THE following degrees were conferred on December 17th, 1908:

*M.B., B.C.*—G. G. Collet, Trin.
*M.B.*—A. J. Cardew, Clare.

Mr. J. S. Gardiner, M.A., Caius College, has been appointed University Lecturer in Zoology; and Mr. H. B. Fantham, D.Sc.Lond., Christ's College, Assistant to the Professor of Biology.

## SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have been approved at the examinations indicated:

PRIMARY (*Part I*).—*Biology*: R. A. Taylor. *Chemistry*: K. L. Hart-Davis. *Materia Medica and Pharmacy*: W. E. North-Smith, C. J. H. Riches, H. E. Rose.

PRIMARY (*Part II*).—*Anatomy*: R. S. de C. Bennett, J. J. Benyon, H. E. B. Finlaison, A. J. Frädersdorff, G. F. Malden, H. Rowntree. *Physiology*: R. S. de C. Bennett, J. J. Benyon, A. J. Frädersdorff, C. A. Mortlock-Brown, H. Rowntree.