HYDROCYANIC ACID AS A BACTERICIDE.

To the Editor of THE LANCET.

SIR,—An annotation in your issue of Sept. 23rd uttered a timely warning regarding the danger attending the use of hydrocyanic acid gas as a fumigant in ship disinfection, and questioned whether it was of much value as a germicide. In order to ascertain definitely if such was the case the following simple experiments were conducted.

A broth culture of *B. typhosus* was selected as the test organism, and the solution of hydrocyanic acid (prussic acid) of the British Pharmacopœia was employed as the reagent, and an attempt was made to determine its carbolic acid coefficient. The concentrations of the acid examined would, of course, greatly exceed those which it is possible to realise under fumigation conditions on board ship.

The result of the inquiry proves (vide the accompanying test table) that prussic acid has no measurable carbolic acid coefficient. *From a bactericidal standpoint it is too weak to appreciably affect pathogenic germs.* Further, strips of sterile filter paper, moistened with the above broth culture, which were suspended in the vapour over the acid in a stoppered bottle for one hour, were found to be unaffected, the strips giving rise to vigorous cultures of *B. typhosus* when placed in sterile broth. Like many of the most virulent animal poisons, such as strychnine, aconitine, &c., prussic acid is produced by certain of the higher plants, and like them it is not injurious to the lowest plants (bacteria).

As a disinfectant its employment is therefore as fatuous as it is dangerous.

I am, Sir, yours faithfully,

WILLIAM C. REYNOLDS, D.Sc., F.I.C.

Jeyes' Laboratories, Plaistow, Oct. 2nd, 1922.

Standard Bacteriological Test (Rideal-Walker Method).

Sample.	Dilution.	Time culture exposed to action of disinfectant—minutes.				Subcultures.	
		2½	5	7½	10	Period of incubation.	Temperature.
Hydro-cyanic acid	1:2	+	+	+	+	48 hours.	37° C.
	1:4	+	+	+	+		
	1:6	+	+	+	+		
	1:8	+	+	+	+		
B.P.	1:6	+	+	+	+	48 hours.	37° C.
Phenol..	1:105	+	+	..	..		

Temp.: 15° C. Date: 2/10/22. Strain *B. typhosus* used: Lister. Rideal-Walker coefficient: Less than 0.02.

A CASE OF PRIMARY CARCINOMA IN AN INFANT.

To the Editor of THE LANCET.

SIR,—In connexion with the article in THE LANCET of July 29th on Primary Malignant Growth of the Liver in Infants, by Mr. C. B. Dansie, the accompanying notes of a case which came under the observation of Dr. R. H. Vallance, of Lewes, and myself not long ago seem to merit publication.

The child, N. H., was born on March 15th, 1920, and died on May 13th following. The mother is a healthy woman about 36 years of age, and has two healthy children. She had another child, premature and stillborn. There is no history of either cancer or syphilis on either maternal or paternal side. Dr. Vallance attended at the birth of the child which is the subject of this letter. Labour was normal, and at birth the child appeared perfectly healthy and well developed. It was a full-term baby. In the course of the first ten days after birth the child had a slight discharge of blood from the vagina which lasted about two days, but the actual loss of blood was negligible. The mother thought that the infant was more delicate from birth than her other children, and states that it was from the first unusually drowsy and pale in colour, but there appeared to her to be no reason for calling in a doctor. The child was brought up on the breast. Death took place quite suddenly in the early morning just after a full and apparently normal breast-feed. For some weeks before death there was slight daily sickness, and according to the mother the child's skin gradually became "yellowish-white."

At the autopsy the body was poorly nourished but not emaciated. The weight was 7½ lb. There was no external evidence of disease, and internally all the organs of the body appeared perfectly normal with the exception of the liver. The liver weighed 10½ oz., and most of the left lobe was occupied by a growth, roughly spherical in shape, measuring about 2½ inches in diameter. This growth was firm in consistence and distinctly yellow in colour. There was also a small nodule of similar growth situated in the edge of the right lobe. The stomach was dilated, and contained a considerable quantity of undigested milk. The stomach walls were thin and pale.

A portion of the growth, with some of the surrounding liver tissue, was forwarded to the Stephen Ralli Memorial Laboratory for examination. Externally the growth was homogeneous; it was surrounded by a definite zone of hæmorrhage. Sections made from the growth showed a fairly abundant fibrous stroma, with numerous imperfectly-defined acini lined with cubical cells. Small isolated groups of degenerated hepatic cells were scattered throughout. At parts there were considerable necrobiotic changes. The microscopic characters generally were those of a primary bile-duct carcinoma of the liver.

I am, Sir, yours faithfully,

H. M. GALT.

Royal Sussex County Hospital, Brighton, Oct. 4th, 1922.

THE ACTION OF VACCINES.

To the Editor of THE LANCET.

SIR,—Dr. J. Pratt-Johnson, in a paper with this title in THE LANCET of Oct. 7th, has made certain statements upon which I would like to make a few comments. He apparently maintains that the severe local reaction produced by certain vaccines is an anaphylactic phenomenon. He further states that—

"Erroneous views have been put forward in explanation of the toxicity of vaccines in these cases. These severe reactions have been stated to be due to some peculiar property, rather than to a change in the susceptibility of the patient to the vaccine, and new drastic methods of preparing vaccines have been introduced with the idea of reducing the local reaction and the so-called toxicity of the vaccine (11). The new methods consist of the breaking up of the bacterial bodies by strong chemical solutions aided by mechanical appliances and employing the suspension of the residue as a vaccine (12). The actual effect of this procedure is to weaken enormously the antigenic value of the vaccine, the titre of which is probably a hundred times less than the titre of the original bacterial suspension."

The above quotation is a somewhat scathing attack on my researches on the detoxication of vaccines, since his references to the literature—viz., Nos. 11 and 12 in this quotation—refer to my original papers on this subject. His statements just quoted are, in my opinion, unjustifiable and very misleading, as it appears to me quite erroneous to maintain that the reaction of a vaccine is due to anaphylaxis and that it depends upon the susceptibility of the patient. Patients no doubt vary in susceptibility and he may attempt to explain this variability by anaphylaxis if he likes, but there is no scientific proof that this is the true explanation, and no one even knows the nature of anaphylaxis, which is still a mystery. Apart altogether from the variation in the susceptibility of patients, it is a well-recognised fact that the toxicity or reaction-producing power of a vaccine resides in the vaccine itself, and that the toxicity of a vaccine exists as a thing apart from anaphylaxis. Dr. Pratt-Johnson might as well maintain that the toxicity of cobra venom or the irritant effect of "606" injected into the tissues was due to anaphylaxis, or that, because the susceptibility of patients to "606" is variable, therefore the reactions produced by "606" were anaphylactic in nature.

Again, I disagree entirely with his statement that the actual effect of my detoxication procedure "is to weaken enormously the antigenic value of a vaccine, the titre of which is probably at least a hundred times less than the titre of the original bacterial suspension." Is this an authoritative announcement from Dr. Pratt-Johnson, or is it mere opinion and guesswork? Such a statement, apparently unsupported by carefully

detailed scientific experiments, is misleading, and is not conducive to the progress of science. In my papers on the subject of detoxicated vaccines detailed and extensive researches are mentioned, from which it is clearly proved that the detoxication process does not destroy the antigenic nature of the vaccine. Moreover, all other statements which have been made in my papers on the subject have been supported by extensive clinical and laboratory experiments carried out in a careful and scientific manner.

Dr. Pratt-Johnson is entitled to his opinions, and as such they are of value. When, however, they are published in a manner which would lead the reader to believe that they are authoritative facts, it seems to me that he is unfair to himself, to the work which he condemns, and unfair and misleading to the medical reader of his otherwise commendable paper.

I am, Sir, yours faithfully,
Harley-street, W., Oct. 7th, 1922. DAVID THOMSON.

AN UNUSUAL EYE INJURY.
To the Editor of THE LANCET.

SIR,—The following eye injury happening in a cotton mill may be of interest to your readers and probably more so to factory inspectors.

A girl was brought to me by the manager of a spinning mill with a "traveller" (i.e., a small brass alloy wire such as is used for binding books, &c.) embedded firmly in the eye to the depth of a quarter of an inch, one part being in the iris and one in the cornea. These "travellers" are used on a vertical bobbin on a doubling machine travelling at 9000 revolutions per minute, and this is, I understand, the first time an accident of this nature has occurred.

This patient, in my opinion, narrowly escaped being blinded, but after extraction nothing but a conjunctivitis followed, and this soon succumbed to a 5 per cent. solution of argyrol.

I am, Sir, yours faithfully,
R. KAY NISBET, L.R.C.S. Edin.
Hindley, Lancs., Oct. 6th, 1922.

EFFECT OF POSITION IN THE FAMILY ON THE HEALTH OF THE CHILD.
To the Editor of THE LANCET.

SIR,—In his article on this subject in THE LANCET of Oct. 7th Dr. R. H. Vercoe has brought forward some very interesting data, but his omission from consideration of one vitally important factor absolutely invalidates his conclusions. He has omitted to consider the mortality figures for children according to their position in the family, and has investigated only children who have passed the age of 13 years. His figures show that in the group he investigated "in incidence of disease both past and present, the worst child is definitely the eldest, while the best is definitely the eighth child and upwards." This conclusion, which he presents without qualification, would naturally be taken to apply to all children born. In reality it refers only to children who have not died before the age of 13.

The following mortality figures present the matter in a very different light :—

Arthur Geissler concluded from a study of about 26,000 births of unselected marriages among miners that the mortality of children was least in the four first born, and then increased to a very high rate. Following are Geissler's figures (marriages with only one or two children are omitted) :

Children.	Percentage of deaths during first year.	Children.	Percentage of deaths during first year.
1st born ..	23	7th born ..	31
2nd „ ..	20	8th „ ..	33
3rd „ ..	21	9th „ ..	36
4th „ ..	23	10th „ ..	41
5th „ ..	26	11th „ ..	51
6th „ ..	29	12th „ ..	60

(No-Malthusianism and Race Hygiene, in "Problems in Eugenics," vol. ii., London, 1913. Dr. Alfred Ploetz, President of the Int. Soc. for Race Hygiene.)

The following table is based on the reproductive histories of 1191 married mothers who had 5617 births. Miscarriages

are not included. It was made in Johnstown, Pa., U.S.A., in 1913.

Children.	Deaths per 1000.
1st and 2nd born	138.3
3rd and 4th „	143.2
5th and 6th „	177.0
7th and 8th „	181.5
9th and later „	201.1

(Infant Mortality. Emma Duke. 1915.)

Dr. Alice Hamilton, bacteriologist in the Memorial Institute for Infectious Diseases, Chicago, published the results of a study of 1600 families in the neighbourhood in 1910. The number of children live-born was compared with the number of children who reached the age of 3. A table calculated from the data of all the families shows an ascending mortality-rate.

Number in family.	Child mortality-rate.
4 children and less	118
6 „ „ „ more	267
7 „ „ „ „	280
8 „ „ „ „	291
9 „ „ „ „	303

(The Case for Birth Control. Margaret H. Sanger. New York. 1917.)

I suggest that if Dr. Vercoe would investigate the child mortality statistics among the families whose children are included in his recent investigation, his conclusions would have to be very greatly modified, if not absolutely reversed.

I am, Sir, yours faithfully,
Harley-street, W., Oct. 9th, 1922. NORMAN HAIRE.

The Services.

NEW DIRECTOR-GENERAL OF THE INDIAN MEDICAL SERVICE.

Col. R. C. Macwatt, C.I.E., Inspector-General of Civil Hospitals in the Punjab, has been appointed successor to Maj.-Gen. Sir W. R. Edwards, C.B., C.M.G., who retires shortly from the post of Director-General of the Indian Medical Service.

ROYAL NAVAL MEDICAL SERVICE.

Temp. Surg. Lt. (D.) E. C. Bevis to be Surg. Lt. (D.) with seniority.

ROYAL ARMY MEDICAL CORPS.

Temp. Capt. V. Vesselovsky relinquishes his commn. and is granted the rank of Maj.

Capt. G. R. Grant is seconded for service with the Egyptian Army.

ARMY RESERVE OF OFFICERS.

Maj.-Gen. J. J. Russell, late R.A.M.C., and Lt.-Col. K. B. Barnett, having attained the age limit of liability to recall, cease to belong to the Res. of Off.

INDIAN MEDICAL SERVICE.

Majs. W. S. J. Shaw, H. H. Broome, D. Heron, H. C. Keates, L. Reynolds, R. A. Needham (temp. Lt.-Col.), Dwarka Prasad Goil, and J. Kirkwood to be Lt.-Cols. Capts. Phirozshah Byramji Bharucha, R. W. G. Hingston, R. C. Clifford, Latafat Husain Khan, R. de S. B. Herrick, Hargobind Lal Batra, H. Purvis (Bt. Maj.), and W. Walker to be Majs.

The King has approved the retirement of Col. T. M. Granger.

ROYAL AIR FORCE.

Capt. J. J. Boyle, Army Dental Corps, is granted a temp commn. as a Flight Lt. on attachment for four years' duty with the R.A.F.

ARMY DENTAL CORPS RESERVE.

Vacancies are announced in the Army Dental Corps, Regular Army Reserve of Officers, for a limited number of dental surgeons who held temporary commissions as dental officers in the Army during the war of 1914-19. Appointments will be made in two classes: Class I., officers who are fit for general service; Class II., all other officers. An officer will not be appointed to a higher rank than that which he was granted on relinquishment of his temporary commission nor will he be granted a commission in the Reserve of Officers if his age exceeds: For a lieutenant, Class I., 30, Class II., 40; captain, 35 and 45 respectively; and major, 40 and 45 respectively. Particulars of the conditions of service may be obtained from the Secretary (A.M.D. 1), War Office, Whitehall, S.W. 1.