

Immunity after B.C.G. Vaccination

Q.—How long does immunity to tuberculosis take to develop after vaccination with B.C.G., and how long does it last?

A.—Calmette himself advised that infants given B.C.G. vaccine should be removed from contact with infection for 2 months thereafter, and re-vaccinated after 3, 7, and 15 years. There is evidence that some resistance to infection develops within about 2 months in the fact that the treated individual usually becomes tuberculin-sensitive within that time. In those particularly exposed to infection, such as household contacts and hospital nurses, natural infection may be expected to reinforce the immunity originally conferred by B.C.G.

Lice and the G.P.

Q.—Could you advise me on the best method of protecting myself and my family from becoming infested with pediculosis corporis as a result of picking up odd specimens in certain parts of the practice?

A.—Short of wearing protective clothing, or of the regular use of insecticides over the external clothing, the risk of picking up occasional lice cannot be avoided in some medical duties. But the risk of a sustained infestation (i.e., lice breeding in the clothing) from such rare specimens is extremely slight if the underclothing is laundered regularly. We know of colleagues who, in the course of research, have worked exclusively on pediculosis corporis, with several hours daily in a clinic of verminous persons, without finding more than one or two lice in their own clothing in the course of many months.

When the new insecticide D.D.T. becomes generally available it will be possible to make quite certain of protection by dusting the underwear weekly with an ounce of 10% D.D.T. powder.

Modern Methods of Blood Examination

Q.—The various new procedures used this last five years or so in the recording of R.B.C.s, M.C.V., etc., are rather confusing. Could we have an explanatory paragraph, mentioning the additional knowledge obtained over previous methods?

A.—In the Wintrobe system for examining venous blood, which is now commonly used, a portion of the oxalated or heparinized blood is placed in a Wintrobe haematocrit tube, which is allowed to stand for one hour for the estimation of the sedimentation rate. The tube is then centrifuged at high speed and the percentage volume of cells read from the graduations on the tube. If the red cell count and haemoglobin are now determined in the ordinary way, the following indices can be calculated:

The mean corpuscular volume (M.C.V.) is determined by dividing the haematocrit percentage ($\times 10$) by the number of red blood corpuscles in millions per c.mm., the result being expressed as cu. μ . For example, if the haematocrit percentage is 45 and the red blood corpuscles 5 millions per c.mm., the mean corpuscular volume is 90 cu. μ .

The mean corpuscular haemoglobin (M.C.H.) is determined by dividing the grammes of haemoglobin per 100 c.cm. of blood ($\times 10$) by the number of red blood corpuscles in millions per c.mm., the result being expressed in micro-microgrammes, symbolized by the letters $\gamma\gamma$. For example, if the haemoglobin per 100 c.cm. is 15 grammes and the red blood corpuscles 5 millions per c.mm., the mean corpuscular haemoglobin is 30.0 $\gamma\gamma$.

The mean corpuscular haemoglobin concentration (M.C.H.C.) is determined by dividing the grammes of haemoglobin per 100 c.cm. ($\times 100$) by the haematocrit percentage, the result being expressed in per cent. For example, if the haemoglobin per 100 c.cm. is 15 grammes and the haematocrit percentage 45, the mean corpuscular haemoglobin concentration is 33.3%.

Other constants, less frequently determined owing to the time-consuming nature of the techniques, are: (1) the mean corpuscular diameter and coefficient of variation of the red cells, which are measured by the Price-Jones technique; and (2) the mean corpuscular fragility, which is determined by measuring the percentage of haemolysis in graded strengths of hypotonic saline solutions.

The advantages of these measurements over the simple calculation of the colour index are numerous. There is a growing tendency to report haemoglobin values in terms of grammes of haemoglobin per 100 c.cm. of blood, instead of percentages of an arbitrary scale. The idea that 100% Haldane is the "normal" value has in fact led to very grave confusion, but once we abandon percentage scales of haemoglobin it is anomalous to try to preserve the colour index. Secondly, the haematocrit percentage is a valuable check on the haemoglobin level. Thirdly, it is possible for corpuscular volume and corpuscular haemoglobin to vary independently. In tropical anaemias, in particular, the cell volume may increase at the same time as the haemoglobin concentration falls, owing to a dual deficiency of P.A. factor and iron. This would not be revealed by the colour index. Fourthly, if we know the cell volume and the cell diameter we have an approximate idea of the shape of the cell and can calculate the cell thickness. In familial acholuric jaundice

the cells are small and plump (spherocytosis), whereas in Mediterranean anaemia (Cooley) they are broad and thin (leptocytosis). In practice, then, the new procedures have proved of considerable value in the diagnosis and classification of anaemias.

INCOME TAX**Retirement from Colonial Service**

G. A. is retiring from the Colonial Medical Service and becoming entitled to a gratuity and to a return of contributions to a pension fund plus 2½% interest. Are these sums liable to income tax?

*. In our opinion—no.

Dispensers' Salaries

W. H. is one of three partners in a practice. Each partner has a dispenser-secretary paid by himself, and the expense is treated as deductible from each partner's share of the firm's profits. The inspector of taxes insists that the three employees should be shown on one return to be made as for the practice as a whole.

*. Clause (2) of the Statutory Regulations governing P.A.Y.E. defines an "employer" as meaning "any person paying emoluments on his own account or on behalf of another person." Clearly each partner is the "employer" for the purpose of these Regulations, and we consider that they are entitled to make separate returns if they desire to do so.

LETTERS, NOTES, ETC.**Artificial Respiration**

Dr. J. L. WHITWORTH (Melbourne) writes: The chief secretary of the Royal Life-Saving Society (March 17, p. 387) stresses the absence of proof of the arching of the diaphragm in the cessation of breathing, in defence of the Schäfer method of resuscitation against the rocking method outlined by Dr. F. C. Eve. But is this arching of the diaphragm really important? The response to treatment is surely more to the point; and Eve's method has proved its "response to treatment" reputation, especially at sea. As a matter of fact, the points of contention and their explanations and proof in the matter of cessation of breathing could be named and proved; but it is necessary to "kneel before one may rise" and admit the merits of Eve's method of resuscitation.

Treatment of Post-traumatic Headache

Mr. N. GARBER, F.R.C.S. (Johannesburg), writes: With reference to the question and answer on headache after fractured skull (April 14, p. 543), when all else has failed the following will be found of service: (1) oral administration of prostigmin hydrobromide 15 mg. three times daily for six to eight weeks, together with (2) intramuscular injection of 1 c.cm. of a solution of prostigmin methylsulphate 1 in 2,000 twice weekly for six to eight weeks, and (3) restricted fluid intake. Prostigmin potentiates the action of acetylcholine, which is a powerful vasodilator, and thus abolishes vasoconstriction of meningeal and labyrinthine arteries, which vasoconstriction is presumably the underlying cause of persistent post-traumatic headaches. For greater detail the original paper of Malone (*J. Amer. med. Ass.*, 1942, 119, 861) should be consulted. This mode of therapy has yielded most encouraging results at the General Hospital, Johannesburg.

Women in Labour

Dr. CHARLES J. HILL AITKEN (Rotherham) writes: Is it not time the physiologists gave us in the *Journal* an account of the physiological mechanism behind labour, so that the expectant mother can be trained to cultivate the conditioned reflex essential for easy, and possibly painless, labour?

Hygiene in Sanatoria

Mr. H. P. HOLLOWAY (Hounslow, Middlesex) writes: One reads frequent references in the *Journal* and other medical papers (one in your last issue) to the hygiene which is taught in sanatoria to tuberculous patients. I have been a patient in several sanatoria in this country and have never heard a single word of such instruction given. The only advice I can remember was a printed notice hanging on a wall requesting patients not to clean their teeth in the ordinary wash-basins but to use the special basin provided. My own observations proved that even this advice was often ignored. It would surely not be asking too much to require all patients, before discharge, to attend one or more lectures on this very important subject.

Correction

Through an accident in the course of printing our annotation on "Folic Acid" (July 21, p. 91), vitamin B_c appeared as vitamin B in the 14th line.