CLANN: IRELAND'S UNMARRIED MOTHERS AND THEIR CHILDREN: GATHERING THE DATA

Statement of Witness 54

Reference Code:	CLANN/WIT54
Status:	Adopted person
Institution(s)/Agencies:	Sacred Heart Mother and Baby Home, Bessboro, Cork; Catholic Protection and Rescue Society.
Date:	Currently unavailable
Records/Papers included:	Yes
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WITNESS STATEMENT OF [redacted]

1. I make this statement for the purpose of providing evidence to the Mother and Baby Homes Commission of Investigation established by the Irish Government pursuant to section 3 Commissions of Investigations Act 2004 (the "Commission").

2. Attached to this statement is an exhibit marked [redacted] which contains various copy documents. References to page numbers in this statement are to pages in [redacted]

3. I make this statement as an adopted person.

Circumstances of my birth and early life

4. I was born on [redacted] 1965 in the Sacred Heart Mother And Baby Home, Bessboro, Blackrock, County Cork. I was baptised on [redacted] 1965.

5. My birth mother's name was [redacted]. She was from County [redacted]

6. My name at birth was [redacted]. Copies of my birth certificate and baptism certificate are at pages 1 and 2 of [redacted]

7. On [redacted] 1965 CPRSI prepared a medical certificate asking a doctor to assess my eligibility for adoption. A copy of the medical certificate is at page 3 of [redacted].

8. On [redacted] 1966 the Catholic Protection and Rescue Society of Ireland (CPRSI) entered into a foster mother's agreement with Mrs [redacted].

9. I was fostered by Mrs [redacted] until I was presented to my adoptive parents, [redacted] and [redacted], on [redacted] 1966. By this time I was also known as [redacted], and my name was changed shortly afterwards to [redacted].

My submission

10. I wish to make a submission under the following term of reference for the establishment of this Commission

    "To establish the extent of compliance with relevant regulatory and ethical standards of the time of systemic vaccine trials found by the commission to have been conducted on children resident in one or more of these institutions during the relevant period."

11. At page 4 of [redacted] is a copy of an email exchange between me and the National Immunisation Office in Dublin on 30 September 2015. That email exchange states that in 1965, the year of my birth, the vaccinations given in Ireland were:

    (a) BCG

    (b) either diphtheria tetanus (DP) or Diphtheria Tetanus Pertussis (DTP); and

    (c) oral polio vaccine (OPV) as 3 drops on a sugar lump.

12. However my medical certificates confirm that I had diphtheria, whooping cough, tetanus and polio and measles vaccinations ("quintuple vaccinations") on [redacted]st 1965 (first), [redacted] 1965 (second) and [redacted] 1965 (third) as well as a BCG vaccination on [redacted] 1965.

13. A copy of the medical certificates are at pages 5 to 7 of [redacted] In particular the handwritten note at the bottom of page 7 states that I received three quintuple vaccinations on those

dates, by means of injections. The medical certificates also state that I had blood tests on each of those dates.

14. On 13 April 1966 a social worker or secretary of CPRSI wrote to Mrs [redacted] stating that Doctor [redacted] (who I believe to be Dr [redacted] from University [redacted]) would be calling to give me an injection on or shortly after [redacted] 1966. The letter, a copy of which is at page 8 of [redacted], states that she gave me a course of innoculations when I was in Bessboro (which I assume are the quintuple vaccinations and BCG vaccination referred to above) and that I was due one further injection and it is necessary that she gives this injection to me herself.

15. The reason that I was prompted to make this statement was because I saw a programme on television in Ireland [redacted]. The programme, which was produced by RTE, was called "Anatomy of a Scandal". [redacted] he was born in the same property as me on [redacted] 1965, just two months before I was born. In that programme he stated that he had received the [redacted] vaccination.

16. I subsequently carried out some research of my own and obtained copies of two academic papers, one published by Professor Patrick Meenan, Irene Hilary and AJ Beale from Glaxo Ltd and another published by GA Dick, DM Dane, E Moyar Briggs, Margaret Hare and AJ Beale.

17. Copies of those academic papers ((The Lancet, 20 August 1966 pp 424 and 425 and (The Lancet, 14 August 1965 pp 317 and 318)) are pages 9 to 12 of [redacted]

18. Both articles refer to the administering of measles vaccinations and the second article refers to the administering of quintuple vaccination. The numbers of injections and the intervals between them are very similar to the injections which I received as mentioned in paragraphs 12 and 13 of this statement.

19. I therefore believe that I was given the quintuple vaccination and therefore was the subject of a systemic vaccine trial conducted in the Sacred Heart Mother and Baby Home in Bessboro. I have no reason to believe that consent was given on my behalf by my birth mother, my foster mother, or my adoptive parents.

I believe that the contents of this statement are true.

[redacted]

MOTHER & BABY HOMES COMMISSION OF INVESTIGATION

[redacted]

EXHIBIT [redacted]

OMP. [redacted]

ÉIRE IRELAND

Foirm A
Form

Deimhniú breithe arna eisiúint de bhun na hAchtanna um Chlárú Breitheanna agus Básanna 1863 go 1952.

BIRTH CERTIFICATE issued in pursuance of Births and Deaths Registration Acts 1863 to 1952.

Cuir isteach ainm an Achta

* Here insert name of Act under which this Certificate is issued

ARNA EISIÚINT DE BHUN
ISSUED UNDER THE* Children's Allowances Act

Breitheanna a Cláraíodh i gCeantar
Births Registered in the District of Kb 1 Rural

i gCeantar an Chláraitheora Maoirseachta do
in the Superintendent Registrar's District of Cork

i gContae
in the County of Cork

Uimh. No. (1)	Dáta agus Ionad Breithe Date and Place of Birth (2)	Ainm (má tugadh) Name (if any) (3)	Gnéas Sex (4)	Ainm, Sloinne agus Ionad Cónaithe an Athar Name and Surname and Dwelling Place of Father (5)	Ainm agus Sloinne na Máthar agus a Sloinne roimh Phósadh Di Name and Surname and Maiden Surname of Mother (6)	Gairm Beatha an Athar Rank or Profession of Father (7)	Síniú Cáilíocht agus Ionad Cónaithe an Fháisnéiseora Signature, Qualification and Residence of Informant (8)	An Dáta a Cláraíodh When Registered (9)	Sínió an Chláraitheora Signature of Registrar (10)	Ainm Baiste, má tugadh é taréis chlárú na Breithe agus an Dáta Baptismal Name, if added after Registration of Birth, and Date (11)
[redacted]	1965 (sixty-five) [redacted] Sacred Heart Hospital Cork R.D.	[redacted]	M.	/	[redacted]	/	[redacted] Occupier Sacred Heart Hospital	1965	Wm Conway Registrar	

Deimhnímse leis seo gur cóip dhílis í seo de thaifead Uimhir [redacted] i gClár-leabhar na mBreitheanna.
I hereby certify that the foregoing is a true copy of the Entry No [redacted] in the Register Book of Births

[redacted]

*Cláraitheoir (Maoirseachta) na mBreitheanna i gCeantar †(Superintendent) Registrar of Births for District of CORK RURAL No. 1

Is é bliain na Breithe san gCóip Deimhnithe thuas ná
The Year of Birth shown in the above Certified Copy is

Mile One Thousand nine gCéad Hundred and sixty-five

*Scriostar amach na focla seo má's gá.
†Strike out words in brackets if not applicable.

[redacted] 65

Dáta
Date

Is cion trom é an doiciméad seo a athrú nó é a chur chun feidhme taréis a athraithe
TO ALTER THIS DOCUMENT OR TO UTTER IT SO ALTERED IS A SERIOUS OFFENCE

(2)

BIRTH AND BAPTISMAL CERTIFICATE

Parish of St. Michael's Diocese of Cork & Ross

On examination of the Register of Baptisms of the above parish
I certify that according to it [redacted]
was born on the [redacted] day of [redacted] 1965
and was baptised according to the Rites of the Catholic Church
on the [redacted] day of [redacted] 1965
in the Church of St. Michael's, Blackrock, Cork.
by the Rev [redacted]
Parents [redacted]

L.S.

Sponsors [redacted]

Confirmed No Records
Married No Records.
Given on the [redacted] day of [redacted] 2015
Signed Rev [redacted]

VERITAS

[redacted]

(F)

CATHOLIC PROTECTION & RESCUE SOCIETY OF IRELAND.

20, South Anne Street, Dublin.

MEDICAL CERTIFICATE.

Child's Name [redacted] Birth date [redacted] 1965.

Dear Doctor,

May we ask for your kind co-operation and professional help in assessing this child's eligibility for adoption. Before placing the child in an adoptive home we wish to satisfy ourselves and the prospective adoptive parents that he is fit and suitable for adoption. We are anxious also to give the adopters the child's medical history so that, should he become ill whilst in their care, their family doctor may have the advantage of this valuable information.

Your assistance will be deeply appreciated.

Secretary.

Babies under six months:- Birth weight 8 lbs. Present weight 11 lbs. 10 ozs.

Was baby breast-fed No Is baby fully weaned —

Has the child begun to walk No and talk No

Is the child suffering from any infectious or contagious (including skin) disease No

Is the child suffering from any form of heart or pulmonary disease No

Is the child suffering from a rupture No

Are there any signs of active or healed rickets No

Are there any birth marks No please state size and site

Has the child ever had fits No

Is the child's mental and physical development normal Yes.

Are there any signs of hereditary disease No

Has the child been immunised against diphtheria No date

Has the child been immunised against whooping-cough No date

Has the child been immunised against tetanus No date

Has the child been immunised against polio No date [redacted] 65.

Has the child received B.C.G. vaccination Yes. date

Has the child received small-pox vaccination No date

Results of W.R. and KAHN tests Negative

Previous illnesses None.

Do you know of any physical or mental defect which would render the child unsuitable for adoption No.

Doctor's signature [redacted]

Address [redacted]

Date [redacted] 65

We shall be very grateful for an early return of this certificate.

[redacted]

Subject: phone call

From: [redacted]

To: [redacted]

Date: Wednesday, 23 September 2015 11:33

[redacted]

Please see responses re: vaccines as requested.

Regards

[redacted]

www.immunisation.ie

From: [redacted]
Sent: 20 September 2015 16:23
To: [redacted]
Cc:
Subject: FW: phone call

Dear [redacted]

In 1985 the vaccines that were given in Ireland were

BCG given as a subcutaneous injection after birth

Diphtheria Tetanus (DT) given as an intramuscular injection,
OR
Diphtheria, Tetanus, Pertussis (DTP) as an intramuscular injection.

Oral Polio Vaccine (OPV) given orally as 3 drops on a sugar lump

Kind regards

[redacted]

Senior Medical Officer

National Immunisation Office
Health Service Executive
Units 8-9 Manor Street Business Park
Clean Lane
Off Manor Street
Dublin 7
Phone No: [redacted]
Fax No:

Irish Medical Council Registration No 93921

(B)

CATHOLIC PROTECTION & RESCUE SOCIETY OF IRELAND

Name of Child [redacted] Date of Birth [redacted] '65

Immunisations :—Diphtheria : 1st [redacted] '65 2nd [redacted] '65 3rd [redacted] '65

Whooping Cough : 1st " 2nd " 3rd "

Tetanus " " "

Polio : 1st " 2nd " 3rd "

Vaccinations :— Smallpox B.C.G. [redacted] '65

Post Vaccinal Test :— Smallpox B.C.G.

Tonsils and Adenoids Removed Circumcised

Result of W.R. and Kahn Tests

Illnesses :— (Give Dates)

13448

Date of Visit	REPORT
[redacted] '66	Lovely baby. Full of life. Makes friends & everyone. Dublin colouring - brown eyes. Eats everything. Cutting teeth.
[redacted] 66	Lovely baby. Creeping around. Full of life. Eats everything. Must go to bed around 5 pm. Sleeps all night.

Phone Dublin [redacted] *Office Hours* — 10 a.m. to 1 p.m. and 2.30 to 5 p.m. daily. Saturdays 9.30 a.m. to 12.30 p.m.

Catholic Protection and Rescue Society of Ireland

Under the patronage of The Archbishop of Dublin and The Irish Hierarchy

[redacted]

30, South Anne Street
(Off Grafton Street)
Dublin 2.

[redacted] 1966.

IMMUNISATIONS.

B.C.G. [redacted] 1965.

Polio
Tetanus 1965.
Measles 1965.
Diphtheria
Whooping Cough - 1965.

SIGNED

ADOPTION WORKER.

SUMMARY OF LABOUR

(E)

	Labour Began	Presentation	Membrane Ruptured	Cervix Fully Dilated	Infant Born	Placenta Expelled	Tears Repair	Blood Loss
DATE	[redacted]	V	[redacted]	[redacted]	[redacted]/65	[redacted]/65	Episiotomy	3 1/2
HOUR	10 A.M.	L.O.A.		2 pm	4.35 pm	pm		

OBSERVATIONS ON LABOUR:— No progress after 3 hours second stage, Doctor informed, Forceps delivery by Dr. Sutton. Hb. 42% Sedation [illegible]

Drugs Given	Amount	Date	Hour
Pethidine	100 mg.	[redacted]/65	12 noon
Informed Dr.	Seen Dr. [illegible]	[redacted]/65	for Blood transfusion
2 Pints given	be admitted	[redacted]/65	

Baby [redacted]

Sex Male.

Condition Good.

Weight at Birth 8 lbs — On Discharge 8 lb. 10 oz.

Date of Birth [redacted]/65 — Date of Discharge [redacted]/65.

B.C.G. [redacted]/66 — Diet on Discharge Cow's milk 4-1 4 hourly

Blood-test and Quintuple Vaccine - 1st injection given - [redacted]/65.
2nd injection " - [redacted]/65.
3rd injection - [redacted]/65.

[redacted]

[redacted] 1966

[redacted]

Dear Mrs. [redacted]

I justwant to let you know that a [redacted] Doctor, Doctor [redacted] will be calling to give [redacted] an injection some day after the 23rd of April. She gave [redacted] a course of innoculations when he was in Bessboro and he is due one further injection and it is necessary that she gives this herself. I have given her your name and address and have told her that I would let you know to expect her. She could not tell me definitely which day she would call but it will be some day within the week of the [redacted]

With kind wishes,

Yours sincerely,

[redacted]

Secretary.

survey of industrial workers. So far we are not aware of any adverse effects or comments from 100 men who have undergone the procedure.

We believe that the accuracy of the Po_2, Pco_2, and pH obtained from ear-lobe blood is adequate for routine clinical measurement of arterial Po_2, Pco_2, and pH and for survey work.

Summary

Blood from the hyperæmic ear lobe was analysed by micro methods for Po_2, Pco_2, and pH, and the results were compared with those obtained for blood taken simultaneously from the brachial artery. A close correspondence was found between the two sets of results. For the measurement of Po_2, Pco_2, and pH, blood from the hyperæmic ear lobe can be used instead of blood obtained by arterial puncture.

We thank Prof. O. L. Wade for his advice and encouragement, and Mr. J. Collins for technical help. Grants in aid of this work have been received from the Northern Ireland Hospitals Authority, the Wellcome Foundation, and the British Empire Cancer Campaign. One of us (W. F. M. W.) is the holder of a Royal Victoria Hospital Research Fellowship.

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MEASLES VACCINATION

IRENE B. HILLARY
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P. N. MEENAN
M.D. N.U.I., F.C.Path.

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A. J. BEALE
M.D. Lond., M.C. Path., Dip. Bact.

OF GLAXO LABORATORIES, STOKE POGES, BUCKS

A SMALL trial of measles vaccine was undertaken on children aged eight months to about two years. They were divided into two groups by odd or even date of birth: one group received a placebo and the other an inactivated tween-ether-fractionated measles vaccine intramuscularly. One month later both groups received a single dose of attenuated measles vaccine subcutaneously. Children were followed up from day six to fourteen by taking rectal temperatures at 6 P.M. A blood-sample was obtained before the first inoculation and one month after the final dose of attenuated measles vaccine.

Vaccines

The vaccines were prepared by Glaxo Laboratories Ltd. The inactivated tween-ether measles vaccine was prepared from the Edmonston strain of measles virus propagated on monkey-kidney cells. The haemagglutinin was removed from the inact virus by tween-ether treatment (Norrby 1962). The vaccine was tested for residual measles virus and for extraneous microbial agents by procedures laid down for the manufacture of inactivated poliovaccine. The final vaccine was absorbed on to aluminium phosphate, 2·5 mg. per ml. The attenuated measles vaccine was prepared from the Schwarz strain of attenuated measles vaccine and tested in accordance with the draft regulations prepared by the division of immunological products control of the Medical Research Council. The attenuated measles vaccine was freeze-dried and supplied with an ampoule of fluid to reconstitute the living virus.

VACCINE SCHEDULE

Age	KL	L
6–11 months	7	4
1–2 years	8	9
Over 2 years	2	4
Total	17	17

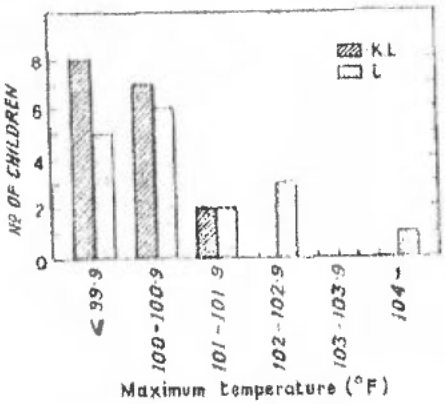
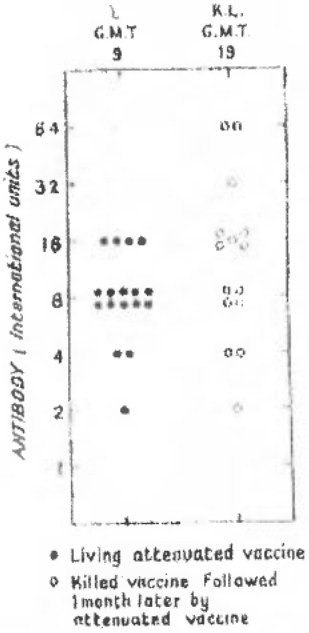


Fig. 1—Fever after vaccination.

Serology

The sera were tested in pairs against the tween-ether measles virus antigen as described by Norrby (1962). The results were expressed in terms of International units of measles antibody by titrating the International standard serum in parallel with the unknown sera.



• Living attenuated vaccine
○ Killed vaccine followed 1 month later by attenuated vaccine

Fig. 2—Haemagglutination-inhibiting antibody after vaccination. G.M.T.=geometric mean titre in international units.

Results

Reactions to the Vaccine

There were 17 children in each group, 10 males and 7 females in the group had killed vaccine and then living vaccine (KL), and 14 males and 3 females in the group had living vaccine only (L). The ages of the children are shown in the accompanying table.

The febrile reactions are shown in fig. 1. Only the L-vaccine schedule was associated with body temperatures over 101 F. Fever appeared after 7.25 days, and there was no difference in incubation period between the two groups. The duration of temperatures over 100 F was under two days for both the KL and L schedule. Only 3 children (all in the living vaccine group) had a rash. 1 child (KL) had conjunctivitis, and 1 child (L) had coeliac disease and vomited. The reactions to the vaccine were all considered trivial by the adults looking after the children.

Serology

All the children had antibodies after vaccination, but 2 children, both in the KL group, had antibodies in their

pre-vaccination serum samples. The results on these 2 children were excluded from the analysis of the serological responses. The results for the other children are shown in fig. 2. Slightly higher antibody titres were obtained on the KL than on the L schedule. This is seen in the distribution of the titres and in the geometric mean titres (G.M.T.), which was 19 units for the KL schedule and 9 units for the L.

Discussion

Despite the small number of children in this trial, the results confirm that a single dose of inactivated measles vaccine given one month before living attenuated measles vaccine will reduce the incidence of fever and other symptoms after the dose of attenuated vaccine. Our study suggests that the hæmagglutinin split from measles virus by ether in the presence of Tween-80 is as effective an antigen in this respect as the whole measles virus antigen used in the M.R.C. trial (1965). This would be expected from the results with a similar antigen prepared by Norrby et al. (1965). Other observers, for example, Fulginiti et al. (1963), Guinee et al. (1963), Karelitz et al. (1963) and Brody et al. (1964), have also found that a KL or KKL schedule does not interfere with the antibody response and may enhance it when compared with a single dose of living vaccine, but they used the less attenuated Edmonston B strain in the living measles vaccine. Our results are in agreement with this previous work but at variance with those of the M.R.C. trial (1965). This showed a lower titre of antibodies to be produced by the KL schedule than by living attenuated vaccine alone. In these trials the "further attenuated" Schwarz and Beckenham 20 strains were used. Watson (1965), however found that the attenuated Beckenham 20 (further) strain gave higher antibody titres when given three weeks after a single dose of inactivated measles vaccine prepared by Eli Lilly. When the attenuated vaccine was given about one year after three doses of inactivated vaccine, still higher antibody levels were obtained.

A reasonable explanation for the findings in the M.R.C. trial would be that the killed vaccine they used produced circulating antibody that curtailed the multiplication of the living virus, since it is known that small amounts of circulating antibody are effective against measles virus. We assume that in our study the inactivated virus vaccine was effective in sensitising the antibody mechanism without producing sufficient circulating antibodies to prevent the growth of the living virus.

It must be emphasised that the reactions to the living vaccine even without a prior dose of attenuated vaccine were mild, but the optimal choice of vaccine schedule to ensure the minimum reactions seem to be killed vaccine followed by living vaccine, although it may be difficult to produce killed vaccine of just the right potency to achieve sensitisation without inhibition of growth of attenuated living vaccine. The successful modification of the reactions to attenuated measles vaccine by a single dose of inactivated vaccine suggests that a full course of an inactivated should be effective in preventing measles.

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CLINICAL USEFULNESS OF AN AUTOMATIC ^{131}I-TRIIODOTHYRONINE-UPTAKE TEST

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THE established techniques for the in-vivo assessment of thyroid function are time-consuming, require the presence of the patient throughout the test, and often involve the administration of radioactive material. In-vitro techniques are also time-consuming and are subject to methodological difficulties. In spite of these problems serum-protein-bound iodine, ^{131}I-triiodothyronine (^{131}I-T_3) red-cell uptake, and ^{131}I-T_3 resin-uptake tests are gaining in popularity. To meet the increasing demand for tests of thyroid activity we devised an automatic technique (Pollard, Garnett, and Webber 1965) for the direct assessment of ^{131}I-T_3 binding without recourse to red blood-cells (Hamolsky et al. 1957) or resin (Godden and Garnett 1964). The technique uses the 'AutoAnalyser' (Technicon Instruments Company) and continuous-flow radioisotope counting. We report here our experience with this technique in the assessment of thyroid activity.

Method and Clinical Material

Principle

Serum diluted in pH 6·33 buffer is incubated with ^{131}I-T_3 for approximately 1·5 minutes at 37°C. A fraction of the unbound ^{131}I-T_3 is removed by a combination of dialysis and ultrafiltration. The radioactivity in the combined dialysate and ultrafiltrate is measured in a continuous-flow counting system. By comparing the sample count-rates with those obtained from a reference pool of normal serum a direct assessment of the ^{131}I-T_3 binding capacity is made.

Method

Standard autoanalyser components were used throughout (except where otherwise stated). A 'Cuprophan' membrane was used in the dialyser. Serum was aspirated at 0·10 ml. per min. and diluted 1 in 40 with pH 6·33 phosphate buffer containing approximately 0·02 µg. per ml. ^{131}I-T_3. This stream was incubated at 37°C in a single mixing coil and passed through the upper half of the dialyser where the exit flow was reduced to produce a nominal ultrafiltration-rate of 0·3 ml. per min.

The same buffer was passed through the lower half of the dialyser at 3·9 ml. per min. The amount of radioactivity in this stream was measured with a 'Teflon' coil mounted in the well of a scintillation counter coupled through a rate-meter to a pen recorder. Serum was added to the buffer stream for 5 minutes in every 18 minutes, producing a test-rate of 3 per hour. When the specific activity of the ^{131}I-T_3 was 20 µC per µg. the count-rate recorded in the absence of added serum was about 900 c.p.s.

The percentage ^{131}I-T_3 serum uptake is defined as 100 × the ratio of the reduction in count-rate caused by aspirating test-serum to the reduction in count-rate caused by aspirating serum from a normal reference pool. This expression is exactly analogous to the term ^{131}I-T_3 resin uptake used in the manual technique described by Godden and Garnett (1964).

Reproducibility

Triplicate tests were performed on each of 5 samples. The maximum range of variation for any one sample was ±1·5%.

Clinical Materials

Serum samples were obtained from 105 patients. 16 patients were suffering from hyperthyroidism; 3 were suffering from hypothyroidism, 20 were in the second or third trimester of

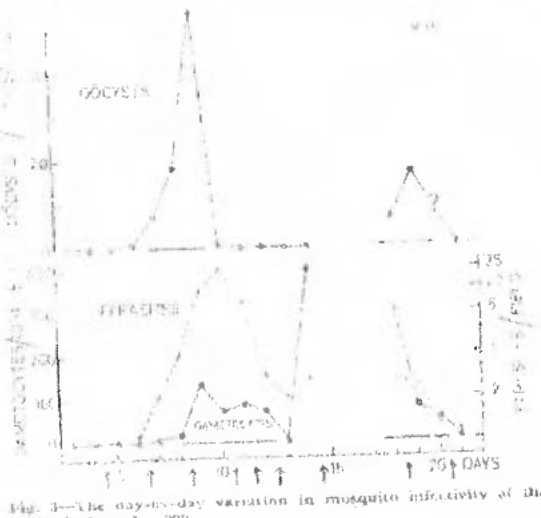

Fig. 1—The day-to-day variation in mosquito infectivity of the blood of monkey 232.

number of gametocytes in the blood was still high (and the asexual parasites soon began to fall in number, presumably as the result of a crisis produced by the monkey's immune response). Probably this immune response adversely affected the gametocytes besides the asexual forms; thus the gametocytes were not able to develop in the mosquitoes although they were still visible in the blood. On day 14, there is a striking contrast between the high number of gametocytes which have appeared in the blood and their complete failure to develop in mosquitoes. Subsequent observations on the course of this infection are incomplete owing to shortage of mosquitoes. Apparently, between days 14 and 18 inclusive there were many gametocytes in the blood, and on day 19 and subsequent days these diminished rapidly in number. The parasitæmia of asexual forms was relatively low during this later period. Of the mosquitoes

TABLE II.—VARIATIONS IN THE INFECTIVITY OF *Plasmodium cynomolgi* WHEN MOSQUITOES WERE FED DAILY ON MONKEY 232.

Day of infection	Mosquitoes infected	No. of oocysts per mosquito			Parasites per 1000 fields	
		Mean, all	Mean, infected	Range	Gametocytes	Asexual forms
						8
						10 S
						88
						520 S
						2100
					547	5040 S
					136	12,800
					22	5,400 S
					89	9000 S
					22	3600 S
					0	2000
					460	2800 S
					360	2200 S
					40	1200
					50	750 S
					5	360
					1	110
					0	90
					0	0

Results are from 10 dissections per group except in those marked * when 20 dissections were made.

† Oocyst penultimate phase of development which took place after the crisis observed and were fewer. There was also a minor brood with some

ing [illegible] on days 18 and 19 at 3 A.M., only half developed oocysts; this contrasts with 150% infected on days [illegible] and 21, when gametocytes were few, and in contrast with no mosquitoes infected during the crisis period, when visible gametocytes were numerous. The ratio of oocysts per mosquito to gametocytes in blood was especially low on day 18. The small number of mosquitoes infected on days 18 and 19 was presumably due to inhibition of the gametocytes by immune bodies. The fact that a few of the gametocytes were still able to develop in mosquitoes, in spite of the immune bodies now accumulated in the monkey's plasma, may indicate that an antigenic variation had taken place in a few of the gametocytes, which might thus enable them to escape the inhibitory action of the immune bodies elaborated against the initial type of malaria parasite.

SUMMARY

During infections of *Plasmodium cynomolgi* in rhesus monkeys, the infectivity of the gametocytes for mosquitoes (*Anopheles stephensi*) follows a 48-hour cycle, with a peak of infectivity about midnight, 84 hours after the schizogony at which they had been formed. The cycle of asexual parasites seems to be arranged so that this phase of maximal infectivity of the sexual forms will happen at the time when the insect vector normally sucks blood (i.e., night time). This seems to be the biological purpose of the synchronisation of the development of individual asexual parasites which constitutes the cycle.

The infectivity of the gametocytes also follows a day-to-day variation which is not proportional to the number of gametocytes in the blood. It is relatively high in the earliest days of parasitæmia and falls abruptly when the crisis of asexual forms begins, presumably due to inhibition by developing antibodies. Later in the infection the number of gametocytes in the blood may be high, and infectivity may be present although relatively less high than at the start; the presence of infectivity, in spite of a high level of antibodies, may indicate that variation has occurred in the antigens of some (but not all) of the gametocytes.

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QUINTUPLE VACCINE

In view of a number of small trials which we have made recently with inactivated-measles-virus vaccines, viral hæmagglutinum obtained by 'Tween'-ether treatment of the virus[1] was blended with a standard quadruple vaccine[2] (poliomyelitis, diphtheria, pertussis, and tetanus) to make a quintuple vaccine. It has been recommended that a quadruple vaccine be given in a course of three doses at intervals of 6 weeks and 6 months, the first dose being given at 6 months of age,[3] but because of doubts about the potency of the measles component of the quintuple vaccine [illegible] was used in this trial. Three [illegible] were given at monthly intervals [illegible] vaccination.

[illegible] Bridges, M.R.C.

...aused by a booster dose 6 months later. None of the ... infants immunised had a history of having had ...les or of being exposed to it. Blood-samples were ...aken from four infants a month after the third dose and ...rom all of them a month after the fourth. Measles-...ntibody titres were measured by the haemagglutination ...inhibition test and the antibody responses to the other ...components were measured by methods described elsewhere.[1] All the infants were observed carefully for ...hours after each immunisation and their temperatures recorded.

After the fourth dose of quintuple vaccine, eight out of ... infants had measles antibody titres of more than ... The ninth infant had a titre of less than 1/2. It is interesting that two infants who had titres of less than 1/8 ... the third dose, nevertheless responded with titres of 1/128 and 1/256 to the fourth dose (see table).

HAEMAGGLUTINATION-INHIBITION TITRES

	Age (mos.) at 1st dose	Titre (1:2 = 1 i.u.) After primary course	After boost
	6	...	...256
	6	...	...256
	6	...	...16
	6	...	1/256
	7	...	1/128
	7	...	1/64
	7	...	...32
	9	...	1/512
	13	...	1/1.28

i.u. = International units. Not tested.

Although there is strong presumptive evidence that H.A. antibody stimulated by tween-ether haemagglutinin vaccines will protect against measles there is, as yet, no definite evidence on the long-term durability of these antibodies or on their protective effect.[1]

The antibody titres to the poliomyelitis, diphtheria, pertussis, and tetanus components of the vaccine were ... to those found after a course of quadruple vaccine. The number of infants in the present trial was too small ... an accurate comparison, but the measles component did not seem to interfere with the response to the ... components.

Mild pyrexia was found in about half the infants after ...tion, and was equally common after all doses. No untoward reactions were observed. Pyrexia is ... after pertussis-containing vaccines and we have ... it after a plain measles-haemagglutinin vaccine ...ining potassium aluminium sulphate (2·5 mg. per ... Whether the presence of pertussis and measles ...gen in a single vaccine will result in a higher ... of pyrexia than results from triple (diphtheria, ... and tetanus) or quadruple vaccine is unknown, ...ously merits further investigation.

The advantages of an efficient quintuple vaccine containing measles component are considerable from the point of view of the infant, the mother, the ... and the administrator. Such a vaccine would be ... for maintaining the greatest possible ...age of the greatest number of children in a community against ... intoxication. The quintuple ...cribed here is a first step towards this goal, but ... increase in potency is obviously required, as are ... to lessen the practical effectiveness and the extent of reactions. Until this work is done we believe that protection against measles could be achieved conveniently by giving attenuated measles vaccine at the same time as the third dose of quadruple vaccine.

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Reviews of Books

Psychopathology

Its Causes and Symptoms. F. KNIGHT TAYLOR, M.D., D.P.M., consultant psychiatrist, Bethlem Royal and Maudsley Hospitals, London. Butterworths. 1966. Pp. 456. 70s.

This ambitious work aims at clarifying current psychiatric concepts. Part I deals with symptoms and causes of mental diseases, and part II with the descriptive and part III with the dynamic approach to abnormal mental states. The author discusses views on the relationship between mind and brain, and on psychiatric nosology, the physiogenic and psychogenic origins of psychiatric symptoms, and disease concepts in psychiatry. The descriptive part of the book is the most informative and the one most characteristic of the author's approach, which is often unconventional and idiosyncratic. A large part of the section of psychodynamics is devoted to hysteria. In discussing psychoanalytical theories, of which he is highly critical, the author warns against the danger of generalising from intuitive insight which requires the assumption of "the ideally typical mind". Such a requirement is not unique to the psychopathologist, because the doctor has to work with the concept of "the ideally typical body". This erudite and thoughtful book will be read with profit by discriminating students of psychopathology.

Syndromes of Disseminated Intravascular Coagulation

With Special Reference to Shock and Hemorrhage. ROBERT M. HARDAWAY, III, M.D., F.A.C.S., F.I.C.A., F.A.A.S.T., colonel, medical corps, U.S. Army; director, division of surgery, Walter Reed Army Institute of Research, Washington, D.C. Springfield, Illinois: Charles C. Thomas. 1966. Pp. 466. $17.50

DISSEMINATED intravascular coagulation (D.I.C.) is defined as "acute, transient coagulation occurring in the flowing blood throughout the vascular tree which may obstruct the microcirculation. It may or may not result in an accumulation of fibrin but does involve the transformation of fibrinogen into fibrin. It includes agglutination of platelets and red cells, and the sticking of leucocytes." The author points out that it is now thought that the endothelial surface of blood-vessels is lined with fibrin which is constantly being formed and equally being removed after a time by the action of fibrinolysins. If this balance is disturbed fibrin may accumulate, and it is changes in this equilibrium that result in D.I.C. Experimental work on dogs suggests that the following findings are typical of an episode of D.I.C.: sudden appearance of hypotension, shock with possibly cyanosis and death, the appearance of clinical bleeding tendency, falls in level of blood-clotting elements, especially fibrinogen, [illegible] and platelets, activation of endogenous heparin and [illegible] and the finding of capillary thrombin