V

THE VERNES REACTION

REPORT ON A THOUSAND SERA

By R. W. B. ELLIS, M.A., M.B., B.Ch. (Cantab.)

From the Research Laboratory, Hospital for Sick Children, Great Ormond Street

SINCE the Vernes Reaction for syphilis was introduced into this country in 1928 by Ofenheim,¹ it has been adopted by a number of English laboratories, and favourable references to it have appeared in the literature. The method has several advantages. The technique (Vernes,² Baylis *et al.*³) is comparatively simple, the personal factor is as far as possible eliminated by mechanical means, and a numerical value is obtained for the degree of flocculation occurring on mixing a given serum with the standard colloidal suspension of antigen. By this means cases under treatment may be closely followed, and the fall in flocculation-value noted on the administration of different drugs.

Up to the present, however, no actual results have been published in England. This is perhaps partly due to the fact that the author of the test attaches much more importance as evidence of syphilis to fluctuation in the flocculation-value in the individual on repeated testing than to a single raised value, and consequently refrains from defining the numerical limits of the "doubtful" group. As, however, the value of any test for diagnostic purposes will be considerably affected by the percentage of cases requiring a second examination (even if a repetition will result in a definite diagnosis being given), it was decided to report the present series from the point of view of a single examination. The sera have been arbitrarily grouped into those giving a V.R. of 0-4, those with V.R. 5-9, and those where the V.R. is 10 or over—values somewhat higher than those adopted at the Copenhagen conference⁴ for purposes of comparison with the "negative," "doubtful," and "positive" of other reactions. The Wassermann Reaction (No. 1 method, Medical

THE VERNES REACTION

Research Council) on the same sera are here given as a standard of comparison.

The sera examined were obtained from St. Thomas's Hospital by courtesy of Colonel L. W. Harrison, and from the Hospital for Sick Children, Great Ormond Street; the Wassermann Reactions (and, where quoted, the Kahn) on the former (Nos. 1 to 750) were performed by Dr. Osmond and on the latter (Nos. 751-1,000) by Dr. A. G. Signy, to both of whom my sincere thanks are due for permission to quote their results.

RESULTS

Of the 1,000 sera examined, 467 were from individuals who were known to be or have been syphilitic, and 533 from cases free from syphilitic infection. Doubtful cases have been as far as possible excluded. Of the syphilitics, 54 were untreated cases and 413 treated; in the great majority of the latter, "treatment" represented at least one full course of intravenous or intramuscular arsenic with bismuth or mercury in addition.

It will be obvious that in assessing the value of individual estimations, the most significant results will be those obtained in cases of untreated syphilis and in non-syphilitics; in treated cases it is not possible to say absolutely without a long subsequent clinical record whether the serum reaction has become negative prematurely or not. The untreated cases have therefore been reported fully, the results in the treated and non-syphilitic cases tabulated.

UNTREATED SYPHILIS. FIFTY-FOUR SERA

Ref. No.	Vernes R.	W.R.	Kahn.	Stage of Disease.	Approximate Duration.
17	24	++		Primary sore . .	1 week.
49	88	++	PP	Secondary rash . .	3 months.
50	49	++	PP	Secondary rash and sore throat for 1 week.	Uncertain.
70	61	++	PP	Primary sore . .	2 weeks.
98	48	++		Secondary . . .	Uncertain.
102	100	++		? Latent . . .	Uncertain.
103	101	++		Tertiary . . .	Uncertain.
114	16	++	PP	Latent . . .	More than 14 years.
132	70	++	PP	Secondary . . .	6 weeks after primary.
189	29	++		Tabes . . .	21 years.
205	39	++	PP	(No history obtainable)	

BRITISH JOURNAL OF VENEREAL DISEASES

UNTREATED SYPHILIS. FIFTY-FOUR SERA—*continued*.

Ref. No.	Vernes R.	W.R.	Kahn.	Stage of Disease.	Approximate Duration.
252	9	++	PP	Latent . . .	? Bubo 7 years ago.
274	45	++	PP	Gonorrhœa. Tertiary syphilis.	Uncertain.
284	25	++		Secondary . . .	Primary 2 months ago.
322	55	++		Secondary . . .	More than 2 years.
342	81	++		Primary sore . . .	2 weeks.
346	11	++		Latent . . .	No history of sore.
360	3	++	PP	Primary sore . . .	3 weeks.
361	4	++		Primary sore . . .	14 days.
362	64	++		Secondary . . .	2 weeks after primary.
372	81	++		Tertiary: sore on tongue.	13 years.
395	125	++	PP	Tertiary. Swollen testes 6 months.	Uncertain.
405	6	++	PP	Latent . . .	More than 3 years.
406	7	++	PP	Latent. Keratitis 9 years ago.	Uncertain.
407	116	++	PP	. . .	Congenital.
411	93	++	PP	Secondary. 3 months pregnant.	? 6 months.
426	158	++		Primary sore . . .	3 weeks.
450	9	++	PP	Tertiary. Sores on buttocks 2 months.	Uncertain.
492	11	++		Tertiary. Rash for 3 months.	Uncertain.
525	32	++		Latent . . .	Uncertain
544	112	++	PP	Primary sore . . .	3 weeks.
545	11	++		Primary sore . . .	2 weeks.
546	126	++		Secondary . . .	6 weeks.
547	5	++		Tabes. Gonorrhœa 30 years ago.	No history of sore.
554	141	++		Tertiary . . .	2 years.
576	2	Neg.		Primary sore. Sp. pall. present.	4 days.
598	110	++	PP	Primary sore . . .	7 days.
615	89	++		C.N.S. syphilis. Shooting pains for 2 weeks.	No history of sore.
627	2	++		Primary sore . . .	3 weeks.
653	41	++	PP	Primary sore . . .	14 days.
654	48	++		Primary sore . . .	6 weeks.
663	123	++		Primary sore . . .	3 weeks.
688	9	++		Latent . . .	12 years.
693	62	++		Primary sore . . .	1 week.
718	69	++		(History not available).	
720	82	++		Secondary. Sore throat 3 weeks.	
874	14	++	PP	Latent . . .	Many years.
881	4	Neg.	NN	Congenital with C.N.S. involvement.	Age 10 years.
901	119	++	PP	Congenital syphilis . . .	Age 8 years.
903	74	++	PP	Latent . . .	Uncertain.
936	57	++	PP	Latent . . .	Uncertain.
970	74	++	PP	Congenital. Hydrocephalus.	Age 5 months.
971	8	++	PP	Latent ? congenital . . .	Age 26 years.
978	33	++	PP	Congenital with C.N.S. involvement.	Age 8 years.

THE VERNES REACTION

TREATED SYPHILIS. 413 SERA

—	Vernes R. Under 5.	V.R. 5-9.	V.R. 10 and over.	Total.
W.R. neg. . . .	151	8	2	161
W.R. $\pm$	31	6	1	38
W.R. + or + $\pm$. .	29	2	1	32
W.R. + +	56	19	107	182
<i>Total</i>	267	35	111	

NON-SYPHILITIC CASES. 533 SERA

—	Vernes R. Under 5.	V.R. 5-9.	V.R. 10 and over.	Total.
W.R. neg. . . .	492	20	5	517
W.R. $\pm$	15	0	0	15
W.R. + $\pm$	1	0	0	1
<i>Total</i>	508	20	5	

SUMMARY OF RESULTS

Of the 54 untreated cases of syphilis, 5 gave a Vernes reaction below 5. One of these was clinically a case of congenital syphilis in a child of ten years of age, in whom both the Wassermann and Kahn reactions were negative. The remaining 4 were cases in the stage of a primary lesion, in 1 of which the W.R. was negative. It would appear that in 3 of these primary cases the W.R. became strongly positive before the Vernes reaction showed a significant rise. Seven cases gave a Vernes reaction between 5 and 9, in all of which the W.R. was strongly positive. Of these, 5 were clinically latent, 1 was a case of tabes, and 1 was classified as tertiary. The remaining 42 cases gave strongly positive Wassermann reactions and Vernes reactions of over 10.

In 413 cases of treated syphilis the W.R. and V.R. showed a much wider divergence. Thus 214 showed a

BRITISH JOURNAL OF VENEREAL DISEASES

W.R. + or ++ as compared with 111 showing a V.R. of 10 or over, and 151 gave a negative W.R. compared with 267 in which the V.R. was under 5. In 35 cases the V.R. was between 5 and 9, and in 38 the W.R. was $\pm$. From these results it would appear that the V.R. tends to return to normal in treated syphilis more rapidly than does the W.R.

In 533 non-syphilitic cases, the Vernes reaction was below 5 in 508 (95.3 per cent.), between 5 and 9 in 20 (3.8 per cent.), and 10 or over in 5 (0.9 per cent.). The latter group showed a maximum reading of 16.

The corresponding figures for the W.R. were: negative in 517 (97 per cent.), $\pm$ in 15 (2.8 per cent.), positive in 1 (0.2 per cent.).

CONCLUSION

In the above study of 1,000 sera the Vernes reaction appeared from the point of view of diagnosis on a single estimation to be definitely less valuable than the Wassermann. It would seem that most assistance will be obtained from the test when it is used in conjunction with the Wassermann; this applies particularly to cases under treatment, where the Vernes reaction alters the more rapidly.

It is a pleasure to express my thanks to Dr. David Nabarro for his help, and for providing the facilities for the present study.

REFERENCES

- (1) OFENHEIM, E. *Journ. Clin. Res.*, xiv., January, 1928, 1.
- (2) VERNES, A. *Trav. et Publ. de l'Inst. Proph.*, Fasc. i., Paris, 1922. *Ibid.*, Fasc. ii., Paris, 1923.
- (3) BAYLIS, A., SHEPLAR, A., and MACNEAL, W. J. *Am. J. Syph.*, x., 1926, 298.
- (4) Series of League of Nations Publ. III., *Health*, 1929, iii., 3.