Letters to the Editor

An evaluation of the Technicon AutoAnalyzer for automating complement-fixation tests

The authors (Taylor *et al*, *J. clin. Path.* 1968, **21**, 521-526) have tried to automate the complement-fixation test without taking advantage of the many previous studies published in England since 1964 (Irvine, 1966; Pugh, 1967), in Canada (Reed, Prytula, and Smith, 1967), and in France (Gaillon, Ripault, Studiévic, and Dausset, 1966; Studiévic, 1965; Vargues, Studiévic, and Ripault, 1965a; Vargues, Studiévic, Moraud, and Gonthier, 1965b).

In fact, these publications have proved that the complement-fixation test is easily automated on the AutoAnalyzer at the rate of 70 determinations per hour, without any contamination or carryover (Gaillon, Ripault, Studiévic, and Dausset, 1967). Moreover, the method is simple, reliable, reproducible and rapid, commonly and currently used in many laboratories for syphilis screening.

The method described by Taylor and his coworkers is based on the mixing of the antibody and the antigen alone at 4°C and in leaving the mixture overnight, without addition of complement. Besides that such a method does not correspond to any classical technique, we must emphasize that the kinetics studies (Vargues *et al*, 1965a and b) show that preincubation, even long lasting, does not increase the degree of fixation.

According to Osler and Hill (1955), preincubation would decrease the fixation of complement, the complement being less fixed on the aggregated immunocomplexes than on the elementary immunocomplexes.

In addition, the authors do not tell the number of complement units they use. Therefore, reasoning and kinetics studies show that complement fixation is more sensitive if an amount of complement close to one complement unit (C.H 100) is used.

After this reminder of fundamental immunology, it appears that the authors, under these conditions, did not use the most efficient elements to develop good automation of the method, when using a continuous flow system (AutoAnalyzer).

In fact, automation has been realized since 1964 and has been the object of many papers by Vargues *et al* (1965a and b), Gaillon *et al* (1966), Irvine (1966), Reed *et al* (1967), Valette and Joubert (1967), Roumiantzeff (1967), and ourselves (Vargues *et al*, 1965a and b; Studiévic, 1965).

The automated complement-fixation test (WR) is used in systematic routine applications in a large number of laboratories with cardiolipidic or treponemic antigens. Carryover from positive samples to negative specimens is nonexistent and there are no wash problems with the continuous flow-cell. Several hundreds of specimens can be easily handled every day without special difficulties.

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References

Gaillon, R., Ripault, J., Studiévic, C., and Dausset, J. (1966). *Path. Biol.*, **14**, 952-954.
Gaillon, R., Ripault, J., Studiévic, C., and Dausset, J. (1967). *Int. Arch. Allergy*, **32**, 278-281.
Irvine, W. J. (1966). *Clin. exp. Immunol.*, **1**, 341.
Osler, A. G., and Hill, B. M. (1955). *J. Immunol.*, **75**, 137.
Pugh, V. W. (1967). In *Automation in Analytical Chemistry*, vol. 2, p. 3. Mediad, New York.
Reed, D. J., Prytula, A., and Smith, H. B. (1967). In *Automation in Analytical Chemistry*, vol. 2, p. 161.
Roumiantzeff, M. (1967). In *Automation in Analytical Chemistry*, vol. 2, p, 7,
Studiévic, C. (1965). Automatisation des Réactions de fixation du Complément. Thesis, (Pharmacy), University of Paris.
Valette, L., and Joubert, L. (1967). *Bull. Acad. Vet.*, p. 40.
Vargues, R., Studiévic, C., and Ripault, C. (1965a). *Ann. biol. Clin.*, **23**, 623-640.
Vargues, R., Studiévic, C., Moraud, B., and Gonthier, F. (1965b). *Ann. Inst. Pasteur*, **109**, Suppl. to no. 5, 39.

The problem of 'chronic mastitis' with epitheliosis

The May number of *Clinical Pathology* (pp. 340-347, 1969) contains an article by J. B. Macgillivray with the above heading.

Dr Macgillivray finds that the incidence of invasive cancer after local excision of breast tissue showing chronic mastitis with epitheliosis was nil. He demonstrates the obvious discrepancy compared with my series, in which nine out of 20 with this special form of chronic mastitis developed cancer.

I agree with Dr Macgillivray that allowances have to be made on account of his smaller series and shorter average follow up (seven years versus 17 years), but I doubt whether he is right when he suggests that another possible factor in the high incidence of malignancy in my series should be in the inclusion of cases which in reality were lobular carcinoma *in situ* or intraduct carcinoma from the start. I cannot exclude that a few of my cancer cases contained small foci of lobular carcinoma *in situ* combined with severe epitheliosis but the manifest cancers were not of the invasive lobular carcinoma type. As for the possibility of my including cases of intraduct carcinoma, this is highly improbable. I have not only excluded borderline cases (and I agree with Dr Macgillivray's definition) but I have also excluded cases which other pathologists labelled as epitheliosis, but which in my eyes might be suspected as borderline cases. Other arguments for not having included intraduct carcinoma are mentioned in my monograph.

Another explanation of the discrepancy might be that Dr Macgillivray's follow up only comprises 50% of the patients. If I had been satisfied with this percentage I should nearly have come to the same conclusions as Dr Macgillivray. However, I found most of the cancer cases in the next 45%, a group which was more difficult to trace.

I look forward to Dr Macgillivray's continued studies with bigger series, longer observation periods and—above all—with a better follow up. Until then I find no reason to doubt that severe epitheliosis involves a considerable risk of developing cancer of the breast.

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References

Kiær, W. (1954). *Relation of Fibroadenomatosis (Chronic mastitis) to Cancer of the Breast.* Thesis. Munksgaard, Copenhagen
Macgillivray, J. B. (1969). The problem of 'chronic mastitis' with epitheliosis. *J. clin. Path.*, **22**, 340-347.

Calculation shows that nine tumours in 340 total years of follow up in Kiær's series is on the incidence of one per 38 years which should be compared with no tumours in 49 years of follow up (Macgillivray, 1969). No statistical test is needed to appreciate the lack of a significant difference.—ED.