

Enid C. Plante: Early Days at Fishermens Bend

By Jean D. Swift

CSIRO Division of Mineral Products, Curtin Laboratory
Curtin University of Technology, Hayman Road, Bentley WA 6102

and Thomas H. Spurling

CSIRO Division of Chemicals and Polymers
Private Bag 10, Clayton Victoria 3168

About the authors

Jean Swift (A) is a graduate of RMIT (Associateship Diploma in Applied Chemistry, 1964, and Fellowship Diploma by research, 1967). Jean spent 26 years at Fishermens Bend with CSIRO, initially with the Division of Organic Chemistry then, after graduation with the Divisions of Applied Mineralogy, Applied Chemistry and Applied Organic Chemistry. In 1987 Jean transferred to Perth where she is now with the Division of Mineral Products. In 1987 she was awarded one of the inaugural RACI citations for her work with the "chemists in schools program" and is currently secretary of the WA Surface Science Group.

Tom Spurling (F) is a graduate of the University of WA (BSc(Hons) 1962, PhD 1966). In 1969, after two years as a lecturer at the University of Tasmania, he joined the CSIRO Division of Applied Organic Chemistry at Fishermens Bend as a research scientist, rising to assistant chief 1980-84. In 1985 he was senior private secretary to the Minister for Resources and Energy, then acted as manager of policy and planning in CSIRO's Institute of Industrial Technologies until his appointment as chief of the Division of Chemicals and Polymers in May this year. He is preparing a history of the war-time CSIR Division of Industrial Chemistry. Dr Spurling served as President of the RACI in 1987.

One of the first assistant research officers and, in fact, the first female appointed to the Physical Chemistry Section of the CSIR Division of Industrial Chemistry was a 21 year old graduate of Melbourne University, Enid C. Plante. Miss Plante (now Mrs Enid Toner) made a significant contribution to the work of the division — a contribution which has been largely ignored in succeeding years.

In this short account of her career we will outline her contribution and give a

brief account of her impressions of the early days at Fishermens Bend.

Enid Plante was dux of Firkbank Anglican School in Melbourne, having studied English Literature, Latin, French and Chemistry. Her original intention was to study medicine but family circumstances forced her to do the shorter science degree.

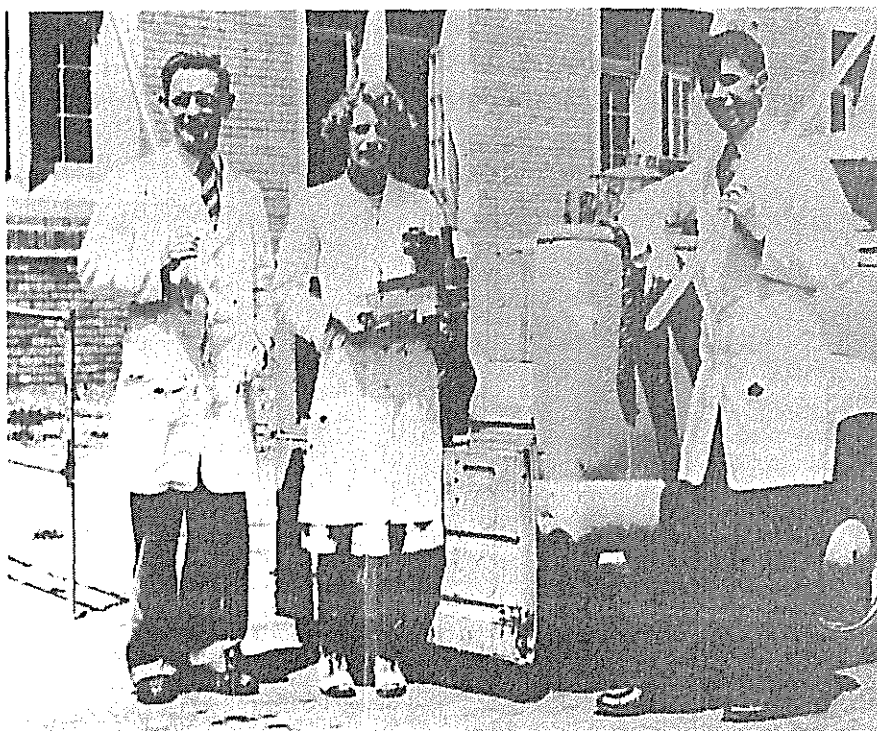
At the University of Melbourne she did a triple major in Chemistry, Biochemistry and Bacteriology. This required working on Saturdays, Sundays and holidays to keep up with the enormous amount of practical work. Due to this enormous workload the course was cut out the following year.

Prior to actually moving to Fishermens Bend, Enid worked in an old tin shed at the University of Melbourne Engineering School. It was there that

Enid studied the stability of Australian hardwood charcoals for use in charcoal gas producers.

During her time at Fishermens Bend (1940-46) Enid Plante made contributions to three projects: the flotation of sulfides and other minerals; the separation of ergot from rye corn; and the use of surface active agents in pesticides.

The mineral work was a continuation of previous work by Dr (later Sir) Ian Wark, head of the Industrial Chemistry Division of CSIR, a position he held for over 20 years. The two areas of flotation studied by the Physical Chemistry Section at that time were cassiterite flotation (studied by John Rogers) and sulfide mineral flotation (Enid). It is noteworthy that research involving the flotation of minerals is still continuing in CSIRO today.



The Physical Chemistry section moving to Fishermens Bend in 1940.
L to R John Rogers, Enid Plante, Keith Sutherland.



Lunchtime at Fishermens Bend. L to R Bob Croft, Alan Walkley, David Wadsley, Alan Wylie, Alan Alderman, Enid Plante, Reg Goldacre, Tom Scott.

Prior to World War II, Australia imported the drug ergot from Spain and central Europe but the country needed domestic production to meet wartime requirements. The new Division of Industrial Chemistry was asked to devise an efficient method for separating the ergot (produced from a fungus from the host plant, rye. Dr Keith Sutherland and Enid Plante quickly developed a flotation method¹ for achieving the separation. The project commenced in 1942 and they separated the whole of the 1943 crop in a specially built pilot plant.²

Enid Plante's final contribution at Fishermens Bend was in connection with the use of surface chemistry and associated techniques in the design and formulation of biologically active compounds. Firstly, she described a number of oil-in-water emulsions containing DDT using monochlorobenzene, a solvent naphtha, eucalyptus oil, pine oil, and cyclohexanone as solvents.³

Her work on DDT was continued by Hackman.⁴ However, she continued to think about the mechanism for the penetration of pesticides into insects, and commenced some experiments on insects but resigned before the work had developed. Enid had married in February 1946 and, a few months later, had left CSIR to work in the allergy section at the Alfred Hospital.

During the war, CSIR scientists were expected to work extended hours without pay — their "war effort". They worked on both Tuesday and Thursday nights until 9.30 or 10. However, Enid recalled that it was "quite fun" and they all had dinner together in the cafe. In fact it was "a lot of fun" in the early days at "The Bend", probably because the division was only small and "everybody knew everybody else and everybody was very helpful to everyone else".

They were always short of equipment so borrowing from the other sections was quite common. It was "very much a family sort of atmosphere" with everyone being new and very keen. They were in fact all quite young, being new graduates. Keith Sutherland who was

head of the Physical Chemistry section was only 26.

With the move of the remainder of CSIRO from Fishermens Bend to Clayton then imminent, it was with great interest that we listened to Enid Toner's impressions of the life and people at Fishermens Bend in those early days.

Publications of Enid Plante

1. "Examination of some Australian hardwood charcoals with special reference to their suitability for charcoal gas producers." J. N. Almond, B. M. Holmes and E. C. Plante. CSIRO Pamph No. 103 (1940).
2. "Examination of some Australian hardwood charcoals with special reference to their suitability for charcoal gas producers." E. C. Plante. *CSIR J.* 1941, 14, 191-200.
3. "Flotation tests on graphite ores from Uley and Koppio." E. C. Plante.

CSIR Div. Ind. Chem. Serial No. 27 (1943).

4. "Separation of ergot from rye corn." Enid C. Plante and K. L. Sutherland. *CSIR J.* 1943, 16, 28.

5. "Separation of ergot from rye corn." Enid C. Plante and K. L. Sutherland. CSIR Div. Ind. Chem.: Ind. Chem. Circ. No. 4 (1943).

6. "Flotation of gypsum and silica from salt." E. C. Plante. CSIR Div. Ind. Chem. Serial No. 37 (1944).

7. "Preparation of DDT emulsions." E. C. Plante. CSIR Div. Ind. Chem. Serial No. 54 (1945).

8. "Emulsions and emulsifying agents with special reference to DDT." E. C. Plante. CSIR Inter-Div. C'tec. Toxicology, 2nd, Canberra, 1945, pp66-73.

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10. "Flotation of unoxidized and oxidized sulphide minerals — antimonite, arsenopyrite, coverllite, lollingite, marcasite, orpiment, pyrrhotite, and tetrahedrite." E. E. Plante. *Tech. Publ. Am. Inst. Min. Metall. Engrs.*, No. 2298 (1948).

11. "Effects of oxidation of sulphide minerals on their flotation properties." E. C. Plante and K. L. Sutherland. *Tech. Publ. Am. Inst. Min. Metall. Engrs.*, No. 2297 (1948).

References

1. Publications 4 and 5.
2. CSIR 17th Annual Report 1943-44, p54.
3. Publications 8 and 9.
4. Hackman, R. H., *Journal of the CSIRO*, 1946, 19, 77.

Footnote

The quotations are from a conversation between Mrs Enid Toner and the authors on January 17, 1986.

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