This interpretative review summarized the behavior of amphiphatic molecules in water and then considered the physical chemistry of bile acid solutions and the behavior of physiologically relevant additives. It discussed the composition of bile, gallstone formation, and fat digestion in physicochemical terms. [The SCP indicates that this paper has been cited over 280 times since 1967.]

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“This review was a labor of love written by Donald Small, who is now director of the division of biophysics in the department of medicine at Boston University, and myself, when I was a member of the department of medicine at the Mayo Clinic.

“The review had two aims. The first was to describe the detergent properties of bile acids using the language and principles of colloid chemistry. The second was to correlate the distinctive detergent properties with their physiologic role of lipid transport, in particular, the transport of cholesterol in bile and of triglyceride digestion products in the intestinal lumen. The review has been popular, I think, because it was among the first discussions of micelle formation in the medical literature and because it attempted to relate human physiology and disease to colloid chemistry. Both Small and I had been trained in internal medicine. I had spent three years in the department of physiological chemistry at the University of Lund, Sweden, working with Bengt Borgstrom Here I had shown that bile acids readily solubilize fatty acids and monoglycerides to form mixed micelles and then had isolated a micellar phase by ultracentrifugation of intestinal content obtained during the digestion of a meal in simulated bile, as well as the surface properties of bile acids.

“Since then I have continued as a clinical investigator, studying the metabolism of bile acids in health and disease; more recently, I have worked on the medical dissolution of cholesterol gallstones with certain bile acids. Small has focused on the structure and function of lipoproteins and has become a world authority on cholesterol metabolism.

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