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CC/NUMBER 47
NOVEMBER 21, 1988

Harris D L, Glock R D, Christensen C R & Kinyon J M. Swine dysentery-I. Inoculation of pigs with *Treponema hyodysenteriae* (new species) and reproduction of the disease. *Vet. Med./Small Anim. Clin.* 67:61-4, 1972.

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Treponema hyodysenteriae (the treponeme of swine "hyo" dysentery) was first cultivated serendipitously while I was attempting to characterize the causative factor of the disease with very crude filtration procedures. Luckily, culture plates that originally were believed worthless were examined and found to contain a previously undescribed pathogenic spirochete. [The SC7® indicates that this paper has been cited in over 180 publications, making it the most-cited paper from this journal.]

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September 19, 1988

In the fall of 1969, while writing my PhD dissertation at Iowa State University, a fellow graduate student, Bob Glock, and I became interested in a rather severe diarrheal disease of pigs called swine dysentery, which was causing great economic losses to pig producers in Iowa. Although the disease had been described clinically and pathologically in 1921,¹ the etiology remained unknown. Bob used unfiltered colonic contents from diseased pigs to produce the disease for sequential lesion development studies. Meanwhile, I embarked on a series of experiments to produce the disease with filtrates of the crude colonic suspensions. Preparing the filtrates was a laborious, stinky process greatly detested by my part-time technician, Mike Mullin. In an attempt to repeat a previous experiment, Mike and I prepared large quantities of two filtrates: material passing 0.65 micron and 0.45 micron filters. As I was on my way out of the door to inoculate pigs, I hurriedly indicated to Mike to place small portions of the filtrate material onto blood agar plates to be incubated aerobically and anaerobically.

After about two weeks, pigs receiving both filtrates began showing symptoms of dysentery. I checked the record book and found Mike had dutifully recorded no growth on the plates incubated aerobically. I told Mike about the "bad" results, indicating that the 0.45 filters must not have retained the causative agent as in the previous experiment. Mike suddenly realized that he had not checked the anaerobic plates for the past 10 days! Mike pulled the plates from the plastic Gas Pak apparatus (I couldn't afford better) and timidly showed me the plates, in which the agar was totally hemolyzed. I almost threw the plates in the decontamination basket but decided I should at least make Mike realize how "poor" his filtration technique had been. I instructed him to prepare Gram stains of what I suspected to be anaerobic streptococci present on the plates. I busied myself with something else, and it was at least two hours before Mike hesitantly informed me that there didn't appear to be any bacteria on the slides, "just some light red material." With great disgust I examined his slides, and, to my disbelief, I visualized thousands of weakly staining gram-negative, snake-like microbes. Electron microscopic examinations of negatively stained preparations confirmed that the organisms were spirochetes and morphologically identical to those observed in acute lesions of the disease by Bob a few months earlier. The spirochete readily produced swine dysentery when given to disease-free pigs, from which it was subsequently reisolated.

The publication has been cited frequently because it named and characterized the causative agent of a very costly disease that affects pigs in most countries of the world. Mike was included as an author on another paper describing techniques for isolation of various spirochetes.² Additionally, a chapter that includes the complete epidemiologic, microbiologic, and pathologic features of the disease has been written.³

Partly as a result of this discovery, I received an early promotion to associate professor and an Outstanding Young Alumnus award from Iowa State University. More importantly, it gave Bob and me the opportunity to make many lasting friendships with scientists from around the world.

1. Whiting R A, Doyle L P & Spray R S. Swine dysentery. *Purdue Univ. Agr. Exp. Sta. Bull.* 257:1-15, 1921. (Cited 50 times since 1955.)
2. Harris D L, Kinyon J M, Mullin M T & Glock R D. Isolation and propagation of spirochetes from the colon of swine dysentery affected pigs. *Can. J. Comp. Med.* 36:74-6, 1972. (Cited 45 times.)
3. Harris D L & Glock R D. Swine dysentery. (Leman A D, Glock R D, Mengeling W L, Penny R H C, Scholl E & Straw B, eds.) *Diseases of swine*. Ames, IA: Iowa State University Press, 1981. p. 432-44.