GUEST COMMENTARY

Clinical Microbiology and ASM: Quo Vadis?

ALBERT BALOWS*

Emory University Medical School and Georgia State University, Atlanta, Georgia†

Charles Dickens started his famous novel *A Tale of Two Cities* by saying “It was the best of times, it was the worst of times.” This is a most appropriate introduction to this guest commentary on the impact of the Journal of Clinical Microbiology (JCM) on clinical microbiology. A full appreciation of this impact can come only from a historical perspective. Clinical microbiology and clinical microbiologists, after a protracted struggle, reached a pinnacle but are now, and have been for 1 or 2 years, at a crossroads.

Clinical microbiology slowly emerged from a dimly lit shadow that at best was part of the clinical pathology laboratory of medium and large hospitals (i.e., those with 150 to 500 or more beds) in the 1950s. Technologists were assigned to perform diagnostic bacteriology, most often on a rotating basis. As a rule they disliked the “bacti bench” because there was little or no training available and the only reliable books on diagnostic bacteriology were Schaub and Foley’s text and a section in Opal Hepler’s laboratory book on clinical pathology. These were cookbook-style texts with instructions on how to prepare cultures and how to identify the ensuing growth into broad generic groups. The collective indole, methyl red, Voges-Proskauer, and citrate utilization tests were very common and formed a rapid method for identifying frequently encountered enterics such as *Escherichia coli*. In those days the differentiation of *E. coli* from *Aerobacter aerogenes* or *Klebsiella pneumoniae* was easy. Still missing from these how-to publications was a clear definition of the relationship of an isolate to an illness in the patient. The medical technologists who were assigned to “bacti lab” duty wanted only to be guided by simple, uncomplicated directions and instructions of how to deal expeditiously with clinical specimens for culture and identification. Frequently the tasks were turned over from one technician to another because of the rotation schedules from the bacti lab (such as it was!) to another section of the laboratory. Continuity usually was lacking.

During the late 1950s and early 1960s two startling events occurred that impacted the above scenario: (i) the rapid introduction of antibiotics to treat virtually every bacterial disease, which predictably would be the death knell of clinical bacteriology, and (ii) the much less dramatic but nonetheless slow emergence of microbiologists with Ph.D. or M.S. degrees who saw the opportunities that existed in the laboratory diagnosis of infectious diseases and wanted to be a part of it. Parenthetically, at this time there was a very limited number of infectious disease specialists and fewer pathologists who were trained in or cared for laboratory microbiology. There were many medical microbiologists who taught in medical and dental schools and did medical microbiologic research, funded by the National Institutes of Health, pharmaceutical industries, or other federal or private sources. These specialists had no desire, interest, or willingness to participate in the hospital diagnostic bacteriology laboratories. In fact, they shunned and avoided those members of the American Society for Microbiology (ASM) who outwardly stated that they worked in the clinical laboratory of a hospital. These outcasts met informally and unofficially in a cloud of secrecy at ASM meetings and after 2 years organized themselves as clinical microbiologists. There were many technical problems to be addressed and resolved—not to mention organizational ones. Most of the problems revolved around techniques; methods; reporting, interpretation, and significance of results in terms of pathogenesis and invasiveness; and most importantly how to do reliable antibiotic sensitivity tests. New antibiotics were discovered and approved at a fairly rapid pace despite the foot-dragging of the Food and Drug Administration. Pharmaceutical companies were manufacturing discs impregnated with high concentrations of their antibiotics to be used in in vitro assays, presumably to guide physicians in choosing the correct antibiotic for treating infectious diseases.

Without question the advent of numerous antibiotics in the 1950s and 1960s ignited a sharp increase in the attention given to the laboratory diagnosis of infectious diseases. Initially clinicians were only interested in the etiologic agent because they felt that penicillin, tetracycline, or streptomycin (or possibly one of the few available sulfon drugs) would result in a cure and, furthermore, that many of the major infectious diseases would be brought under control or eliminated. Surgeons also predicted that post-surgical infections could be prevented and that the rapid demise of infectious diseases as a major health problem would be possible.

At about the same time, a small but vocal group of microbiologists who were members of the ASM (it was the Society of American Bacteriologists before the name change) were trying with very limited success to gain recognition within the ASM as clinical microbiologists. These were microbiologists whose primary place of employment was in the clinical laboratory of medium to large hospitals. Some of these hospitals were part of a university medical center; others were large, independent, free-standing hospitals. The goals of these budding clinical microbiologists were to become organized, gain recognition, and establish a means of communication. Initially an unofficial organization was started by holding informal get-togethers at national ASM meetings. We began to push for official recognition as a section within the ASM. The hierarchy of “senior and elder statesmen” within the Society’s medical microbiology groups looked at us with complete disdain and disfavor. We were counselled to forget our petition as it would not be accepted and was not in the best interests of the ASM. We persisted, and in 1962 the Clinical Microbiology section was officially recognized and our goals began to be implemented.

In 1964 the first seminar or round table on Current Topics in
Clinical Microbiology at the annual ASM meeting was held. It was an overwhelming success! These seminars were extremely popular and became a permanent feature of the ASM for more than 30 years. On many occasions some or all of the presentations were published as handouts or in softcover booklets. This further increased the pressure to organize within the ASM structure.

In 1964 the Clinical Microbiology section was officially formed and very rapidly became the largest section (and, subsequently, the largest division) within the Society’s organizational structure. With this recognition of clinical microbiologists as a bona fide subspecialty of the science. Simultaneously the growth of new technology and methodology was on a fast track. Industry was becoming increasingly interested in the in vitro assay of antibiotic susceptibility, new or improved techniques for isolating etiologic agents associated with infections, and the rapid and accurate identification of such agents. The Centers for Disease Control and Prevention (known at that time as the Communicable Disease Center) had launched a major program in the laboratory evaluation of the efficiency and accuracy of newly marketed reagents and instruments for performing susceptibility tests and identifying isolates from clinical specimens. The interest in developing new reagents, new or improved technology, and the technological approach to the rapid and accurate diagnosis of infectious diseases grew unabated. Applied, or perhaps better termed, clinical microbiology research became popular. Funds and support to conduct research and product development and evaluation were readily available. Colleges and universities were producing clinical microbiologists at the bachelor, master, and doctorate degree levels. In time an ASM-sponsored postdoctoral training program was developed, with 22 programs at various universities or Public Health Service agencies. Programs for the certification and credentialing of microbiologists were established within the ASM. Membership in the ASM soared and the clinical microbiology division rapidly became the largest division within the ASM hierarchy. Attendance at the ASM and International Conference on Antimicrobial Agents and Chemotherapy annual meetings grew rapidly, which was largely due to increased attendance of those interested in clinical microbiology and infectious diseases. Similarly, the numbers of companies who produced and sold diagnostic reagents, kits, and instruments had grown. All of these activities encompassed people who were doing research, working in clinical laboratories, teaching, and in general promoting better, faster, and more-accurate performance of diagnostic tests. JCM has occupied and continues to occupy a central position around which all of these activities rotate.

In 1970, after considerable pressure, argument, and cajoling from clinical microbiologists, ASM published the first edition of the Manual of Clinical Microbiology (MCM). Prior to this the only book published by the Society was a text of standard procedures in general microbiology, and there had been considerable reluctance to publish a book devoted to clinical microbiology. The issue was resolved when an agreement was reached to have three editors, one of which would be a practicing clinical microbiologist and two of which would be senior ASM members who were well-known medical bacteriologists and were not entirely sympathetic to the clinical microbiology activity but were supportive of a manual. The ASM governance and the Publications Board were convinced that MCM would result in a loss but succumbed to the pressure from the Clinical Microbiology section. Only 5,000 copies of MCM were printed, with the hope that enough copies would be sold to break even. In short order, two additional printings were required, and over 20,000 copies of the first edition of MCM were sold! In 1974, the second edition of MCM was published, and simulta-
neously JCM moved from the preparatory phase to actual publication.

The progressive role of clinical microbiology and the continued recognition of clinical microbiologists as peers within the Society ultimately led to the establishment and publication of the first edition of the *Manual of Clinical Laboratory Immunology*. These publication activities created a very positive profit center for the Society and made possible the continued growth of ASM programs, including clinical microbiology activities.

The growth of JCM is best defined by describing the expanding role of clinical microbiology in the delivery of health care today. Technological advances in molecular biology, emerging infectious diseases, detection and surveillance of problematic antibiotic-resistant isolates, molecular epidemiologic typing, detection of pathogenic factors, and the evaluation of automated diagnostic instruments are but a few of the kinds of papers published in current issues of JCM. Authors from all countries of the world submit their manuscripts to JCM. Clinical microbiologists throughout the world have access to new, reliable, and up-to-date information on clinical microbiology practices. The story doesn’t stop here. Just as JCM was split off *Applied Microbiology*, two new journals now published by the ASM are derived from JCM. These are *Clinical Microbiology Reviews* (now in its 11th year of publication) and *Clinical and Diagnostic Laboratory Immunology*, the starting date of which was January 1994. JCM is rightfully designated the benchmark of progress in clinical microbiology. In my judgement it is now appropriate to consider another JCM-derived journal—the “Journal of Applied Clinical Microbiology.”

At the international level infectious diseases rank behind cancer and cardiac disease in annual mortality. Substantial research efforts are well under way to better diagnose, treat, and prevent each of these major diseases. It is assuring to know that JCM will continue to assist clinical microbiologists in the fulfillment of their role in the control of infectious diseases.

The bottom line is that JCM has served clinical microbiology in every conceivable way and will continue to do so in the future.