Fever, Famine, and War: William Osler as an Infectious Diseases Specialist

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In 1896 William Osler addressed the American Medical Association on "The Study of the Fevers of the South," a lecture in which he showed his keen appreciation for the history, pathology, epidemiology, and management of infectious diseases. Osler can be claimed as an infectious diseases specialist not only because infections were the most common causes of death during his time but also because his perspectives and personal qualities typify the discipline as it has evolved during the twentieth century. Ten such desiderata are reviewed. A century later Osler's conclusion remains true for this specialty: "Fever in its varied forms is still with us...but it is of almost equal importance to know that the way has been opened, and that the united efforts of many workers in many lands are day by day disarming this great enemy of the race."

The year 1996 marks the centenary of William Osler's address on "The Study of the Fevers of the South" at the 47th annual meeting of the American Medical Association in Atlanta, Georgia, in which he showed his appreciation of the history, epidemiology, management, and prevention of infectious diseases. With overtones that betrayed his being the son of a clergyman, he began: "Humanity has but three great enemies: fever, famine and war; of these by far the greatest, by far the most terrible, is fever" [1].

Although nuclear weapons and world overpopulation would now prompt most people to rank these enemies in reverse order, Osler’s fame continues to the extent that he has been claimed to have been just about everything—for example, acupuncturist, dermatologist, experimental hematologist, family physician, gastroenterologist, medical geneticist, obstetrician, pathologist, pediatrician, and veterinarian [2–12]. Curiously, he has not been claimed specifically as an infectious diseases specialist although various aspects of his contributions to our specialty have been well reviewed [13–21].

My purpose is to review 10 of Osler’s perspectives and personal qualities that—while by no means unique to infectious diseases—typify the discipline as it has evolved during the twentieth century and as it is represented by the Infectious Diseases Society of America.

1. Avoid Premature Specialization

Osler was ambivalent about specialization. He held that the "physician proper" capable of humanistically sensitive primary, secondary, and tertiary care should be broadly trained for "there are, in truth, no specialties in medicine, since to know fully many of the most important diseases a man must be familiar with their manifestations in many organs" [22]. On the other hand, he believed that "specialism is here, and here to stay" [23]. The danger was that "the extraordinary development of modern science may be her undoing. Specialism, now a necessity, has fragmented the specialities themselves in a way that makes the outlook hazardous. The workers lose all sense of proportion in a maze of minutiae. Everywhere men are in small coteries intensely absorbed in subjects of deep interest, but of very limited scope" [24]. Extreme specialization was bad for medicine and perhaps worse for the patient.

Osler’s objection was not to narrowed fields of excellence but rather to premature specialization. He considered himself either "a specialized generalist or a generalized specialist," to use his own description of Jonathan Hutchinson [25]. Indeed, Hutchinson’s eponymous fame as a student of syphilis illustrates Osler’s own conviction that seemingly narrow pursuits carried out in the right spirit ultimately lead one back to the whole: "Syphilis simulates every other disease. It is the only disease necessary to know. One then becomes an expert dermatologist, an expert laryngologist...an expert internist, an expert diagnostician..." [26].

Despite at least one opinion that neither the "generalist/subspecialist" nor the "subspecialist/generalist" will remain a viable model of health care delivery in the near future [27], infectious disease clinicians—perhaps more than any other specialists—must continue to approach their multifaceted problems, as Osler did, with the generalists’ enthusiasm for all of medicine.

2. Maintain a Broad Worldview

Osler urged physicians to transcend place and ethnic group. Peripatetic by ancestry—the Oslers of Cornwall had tradition-
ally turned to the sea as shipbuilders or merchants—he encouraged young physicians to travel, “to study men, their habits, character, mode of life, their behaviour under varied conditions, their vices, virtues, and peculiarities” [28–30]. Although his own travel was largely confined to North America, the British Isles, and Europe, with one excursion to Egypt, his 1909 address to the London School of Tropical Medicine showed near-encyclopedic knowledge of diseases in what we now call the developing world [31].

He vigorously opposed xenophobia, calling nationalism “the great curse of humanity” [32]. He railed against chauvinism in medicine, which he defined as “instead of a generous appreciation of the work done in other places, there is a settled hostility and a narrowness of judgment but little in keeping with the true spirit of science.” Indeed, “when a teacher tells you that he fails to find inspiration in the work of his foreign colleagues, in the words of the Arabian proverb, ‘he is a fool, shun him!’ ” [32].

It was no coincidence that the subtitle of his 1907 multivolume, multiauthor textbook, Modern Medicine: Its Theory and Practice, was “In Original Contributions by American and Foreign Authors” [33]. The international flavor of this work distinguished it from French and German “systems of medicine” and from the multivolume text by American authors that was edited by the great Philadelphia physician William Pepper [34]. Osler’s multivolume textbook began with a publisher’s note that “a new era has come in medicine, the age of cosmopolitanism. As in finance and trade, the world has become a single country.” Today’s easy spread of pathogens within the global community reinforces this viewpoint as perhaps never before.

3. Appreciate History

Osler’s interest in history showed especially in his study of human efforts, dating to antiquity, to make sense of the various fevers. He credited Thomas Sydenham (1629–1689), “the English Hippocrates,” for having first “clearly grasped the conception that the manifestations of a fever represented the efforts of nature to get rid of the injurious agents causing the disease” [35]. However, the idea of specific infectious diseases was not readily accepted. Benjamin Rush, the most famous American physician at the turn of the nineteenth century, had proclaimed: “There is but one fever. Of course I do not admit of its artificial division into genera and species” [1]. Osler purposefully began his 1892 textbook, The Principles and Practice of Medicine, with a brief history of typhoid fever, since the issue whether typhoid and typhus were separate entities had been one of the great stumbling blocks to the idea of specific infections [36].

Osler became an outstanding amateur medical historian; his 1913 Silliman Lectures at Yale University remain one of the best overviews of the subject [37]. He taught that “by the historical method alone can many problems in medicine be approached profitably. For example, the student who dates his knowledge of tuberculosis from Koch may have a very correct, but he has a very incomplete, appreciation of the subject” [38]. In 1909 he marveled that in his own lifetime physicians had “advanced firmly along a new road in the treatment of disease due to specific micro-organisms, with the toxic products of which we are learning to cope successfully” [39]. This perspective on past and prologue remains apt as we reflect on the growth of molecular biology within our century.

4. Work

Osler was an infectious diseases specialist in that he largely owed his enormous success as a physician to plain hard work rather than to one or more specific talents or technical skills. As a young man, he contemplated specializing in ophthalmology on the grounds that it would afford ample remuneration with spare time for other pursuits. R. Palmer Howard, his Montreal mentor, advised him that others, and specifically one Frank Buller, were better qualified for the ophthalmology training position and that he should try instead to learn all that he could about the whole of medicine. Osler succeeded at this task by concentrating his energies in “day-tight compartments”—a metaphor drawn from the watertight compartments of the great ocean liners of his era and by which he meant blocking out the past and the future to focus on the present [40].

He called work the “master-word” of medicine, “directly responsible for all advances in medicine the past twenty-five centuries” [41]. He might have added that he owed his success in no small measure to his willingness to assume tasks that others would just as soon have avoided, such as his performance of nearly 1,000 autopsies. These led to such small but significant contributions as the case of a young woman who died of alcoholism, pneumonia, endocarditis, and meningitis (“Osler’s tetrad”) [42]. Remembering Osler largely for his eloquent addresses and pithy aphorisms, we sometimes forget that he earned the right to be taken seriously by years of focused hard work given to clear priorities.

Osler contributed some 1,200 articles to the medical literature, and his contributions to the literature of infectious diseases approximate the table of contents of a textbook on the subject (table 1) [43]. Many of these contributions were brief case reports, commentaries, or even duplicate publications—he sometimes regretted the extent of his “ink-pot career”—but many were also original and substantial.

Convinced of “the usefulness of considering together a group or series of similar cases” [44], he tabulated and analyzed his own and others’ experience with diseases ranging from endocarditis to echinococcosis, meningitis to malaria, typhoid to tuberculosis, and many other conditions [45–55]. Also convinced of the value of a single well-studied case, he meticulously described such nuances as the early rashes of smallpox, diffuse myelitis due to syphilis, arthritis in patients with meningitis, and multiple foci of gangrene in patients with malaria [56–59]. Syphilitic aortitis ranked among his favorite diagnoses to the extent that in 1917 he dreamed this possibility was being discussed at his own autopsy and in his presence before
he “woke up just as we were going into the histological room to see the sections of the aorta” [60].

He stressed the importance of regular study and a high energy level: “To an absorbing passion, a whole-souled devotion, must be joined an enduring energy, if the student is to become a devotee of the grey-eyed goddess to whose law his services are bound” [30]. But, like today’s infectious diseases specialists [61], he was not immune to stress and burnout; indeed, it was the great demand for his services that prompted his last career move, from Baltimore to Oxford, England [62]. He taught that the best prophylaxis against stress was to cultivate equanimity and broad familiarity with the classics, and to that end urged students to “spend the last half hour of the day in communion with the saints of humanity” [41, 63].

5. Keep a Skeptical Attitude

Osler would have applauded our insistence on carefully designed clinical trials of new antimicrobial agents. Like many of his contemporaries, he was skeptical of drugs to the extent that he has been called a therapeutic nihilist. He prized “a judicious scepticism, not the crude, coarse form, but the sober sense of honest doubt expressed in the maxim of the sly old Sicilian Epicharmus, ‘Be sober and distrustful; these are the sinews of understanding’” [32]. In his farewell address to North American medical students in 1905, he told them: “At the outset do not be worried about this big question—Truth. It is a very simple matter for each one of you if he starts with the desire to get as much as possible. No human being is constituted to know the truth, the whole truth, and nothing but the truth; and even the best of men must be content with fragments, with partial glimpses, never the full fruition” [30].

Osler was not always on the cutting edge of new knowledge. In 1881 he returned from an international medical congress in London having apparently failed to grasp the significance of Pasteur’s work on experimental vaccination or Koch’s efforts to discover the tubercle bacillus. Possibly he had been overwhelmed by the ambience, for “the sight of above 3,000 medical men from all parts of the world, drawn together for one common purpose, and animated by one spirit was enough to quicken the pulse and to rouse enthusiasm to a high pitch” [64]. But he was cautious even when he knew the data.

In 1881 Osler equivocated on the role of bacteria in endocarditis. Although “the soft endocardial vegetations form a suitable nidus for the development of the micrococci,” blood cultures had not been perfected. Therefore, he wrote, “How far the micrococci seen in vegetations are responsible for the development of the endocarditis or for the subsequent characters which, in the grave form it assumes, the evidence does not, I think, warrant as yet a very positive opinion” [65].

In 1884 he questioned the role of parasites in malaria: “I am not prepared to give a positive opinion as to the nature of these bodies [seen in red blood cells]. They look to me more like vacuoles or areas of hyaline transformation than definite organisms.” George M. Sternberg chided that “I can hardly conceive that I was looking at a vacuole, as suggested by Dr. Osler;” and William T. Councilman added that “Dr. Osler would have received a more definite idea of the bodies if he had examined the stained specimens under the microscope” [66]. Osler later championed the diagnostic value of blood cultures in endocarditis and blood smears in malaria when more data including his own became available [16, 45, 48, 49, 67, 68].

In 1889 he questioned the role of leukocytes in host defense: “While phagocytosis is a widespread and important physiological process throughout the animal kingdom, and while it undoubtedly plays a most important part in many pathological conditions, the question of an active warfare waged by the body cells against the microorganisms of disease must still be considered an open one” [69]. Although he may have been overly cautious about accepting new concepts, his skeptical attitude saved him from posthumous vulnerability of the kind shown, for example, by the following remark by a contributing author to Osler’s Modern Medicine: “The genitals are the special seat of gonorrheal and syphilitic invasion, but further than this play no peculiar role in the development of infectious

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<th>Table 1. Subjects included in William Osler’s specific contributions to the literature of infectious diseases.</th>
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<td>General considerations</td>
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<td>Phagocyte function</td>
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<td>Clinical thermometry</td>
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<td>Treatment of fever</td>
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<td>Fever of obscure origin</td>
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<td>Pneumonia</td>
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<td>Pleurisy and empyema</td>
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<td>Cardiovascular infections</td>
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<td>Bone and joint infections</td>
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<td>Septic arthritis</td>
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<td>Osteomyelitis</td>
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<td>Surgical infections</td>
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<td>Deep space infections of the head and neck</td>
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<td>Subphrenic abscess</td>
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<td>Liver abscess</td>
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<td>Peritonitis</td>
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<td>Appendicitis</td>
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NOTE. From [43].
diseases" [70]. At the core of Osler’s skepticism was intellectual honesty. Returning to Montreal in 1899, 25 years after he had left it, he said: “I have learned... to be a better student, and to be ready to say to my fellow students ‘I do not know’” [71].

6. Investigate

Like the members of this society, Osler emphasized investigation. Although he approached medicine mainly as a naturalist rather than an experimentalist, he knew the limitations of the naturalist’s approach: “Man can do a great deal by observation and thinking, but with them alone he cannot unravel the mysteries of Nature. Had he been able, the Greeks would have done it; and could Plato and Aristotle have grasped the value of experiment in the progress of human knowledge the course of European history might have been very different” [72].

After graduating from medical school, Osler studied the effect of three drugs—apomorphine, physostigmine, and curare—on leukocyte morphology and locomotion [73]. He did not pursue the matter further and, with the arguable exception of an early account of blood platelets [74], made no major scientific discoveries. He recognized that it would be increasingly difficult for physicians to compete with basic scientists: “We clinicians must go to the physiologists, the pathologists, and the chemists—they no longer come to us. To our irreparable loss these sciences have become so complicated and demand such lifelong devotion that no longer do physiologists... become surgeons, chemists [become] clinicians” [75].

Still, he preached that “with a system of fellowships and research scholarships a university may have a body of able young men, who on the outposts of knowledge are exploring, surveying, defining, and correcting” [76]. He began the Inter-Urban Clinical Club, the prototype of its kind, to enable physician-investigators from various cities to share work in progress [77]. Finally, the reading of his textbook of medicine by Rockefeller adviser Frederick T. Gates led directly to the founding of the Rockefeller Institute for Medical Research and to the funding of full-time clinical faculty positions in United States medical schools, both of which had far-reaching consequences [78].

Osler may have been his own best example of the premise that anyone with the right attitude can contribute to medicine’s knowledge base [79]. Perhaps best known are his contributions to endocarditis; we still speak of an “Oslerian tradition” of four pathophysiological categories of criteria (predisposing vascular disease, bacteremia, embolic phenomena, and evidence of an active endocardial process) [80]. He grasped the significance of an early animal model of endocarditis, appreciated the relationship of endocarditis to mycotic aneurysm, and seems to have been the first to describe endocarditis on bicuspid aortic valves [45, 81]. He helped elucidate the pathophysiology of sepsis caused by biliary obstruction (Charcot’s intermittent fever), and it has been proposed that paroxysmal chills and fever due to a single gallstone imprisoned above the orifice of the common bile duct should be called Osler’s syndrome [82–84].

He came close to elucidating the pathophysiology of appendicitis and, as Golden [85] has recently shown, enjoyed a close relationship with Reginald Fitz in that regard. He carefully studied protracted cases of fever without physical signs (fever of unknown origin) and suggested that one should always consider tuberculosis, endocarditis, complicated urinary tract infection, Hodgkin’s disease, and occult tumors—especially tumors involving deep-seated sarcomas and tumors involving the liver—in the diagnosis [86]. Other examples of his clinical studies include the distinction between croup and pneumonia, the timing of surgery in acute abdominal conditions, and the use of antipyretics [87–89]. Taking his investigative attitude to the bedside, Osler easily gained a wide reputation as the consummate consultant.

7. Respond to Societal Concerns

We often associate Osler’s name with fascinating entities of arguable public health importance: endocarditis (Osler nodes), hereditary hemorrhagic telangiectasia (Osler-Weber-Rendu disease), polycythemia vera (Osler-Vaquez disease), and pheochromocytoma due to stiff arteries (Osler’s sign) [90]. Yet just as today’s infectious diseases specialists put aside favorite pursuits to respond to the AIDS pandemic, so did Osler concentrate on the major societal concerns of his era. As Cushing put it: “Pneumonia, Typhoid, and Tuberculosis—these were the three scourges at which he aimed his shafts—the three diseases an intimate knowledge of which he hammered incessantly into his students (figure 1) [91].” Roughly one-half of Osler’s publications on infectious diseases dealt with these three diseases, and the proportion increased during his later years (table 2).

Like today’s investigators, he considered cases of pneumonia as “definite” or “probable,” drew attention to postoperative or “ether” pneumonia, and studied such prognostic factors as age and alcoholism: “Many of the cases which show the most profound toxemia present variations from the typical picture; thus there may be no cough, no expectoration, very slight fever, and no leucocytosis” [13, 92]. He became increasingly interested in tuberculosis, wrote definitive reviews on several of its clinical aspects [51–53], championed the sanatorium movement on both sides of the Atlantic, and urged appropriate home treatment for patients “whose circumstances are such that change of climate or life in a sanatorium is out of the question” [14, 54, 55].

He referred to pneumonia and tuberculosis as “captains of the men of death” and in the instance of tuberculosis expanded on John Bunyan’s military metaphor by saying: “I do not say that it will ever happen—it is not within the bounds of possibility—that the captain of to-day will be reduced to a private, nor is it possible to hope that he will be ‘drummed out of the regiment’” [14]. His last clinical paper was on tuberculosis [93], and in 1919 he was preparing a lecture for the National Association for the Prevention of Consumption and Other Forms of Tuberculosis when his final illness developed.

Typhoid revealed Osler at his scientific best. He called it the fever and told students that they would have a “very fair
knowledge of medicine if they understood typhoid and its complications [1, 94]. Of Max Brödel's cartoon of Osler as "The Saint—Johns Hopkins Hospital" (figure 2), Thomas S. Cullen observed: "In the foreground, amebas, malarial parasites, staphylococci and streptococci are retreating from the whirlwind as fast they can; only the typhoid bacilli are undaunted" [95].

Osler's meticulous studies included a "Note on a Remarkable House Epidemic of Typhoid Fever" that showed his ability as an epidemiologist. Ten cases with four deaths occurred among the residents of "a comfortable, old-fashioned, square stone building . . . situated on a ridge in the beautiful rolling district of Hartford County, only a few miles from the Susquehanna River." His conclusion was characteristically conservative: "Though the surface slope is from the cistern, yet it is quite possible that it may have been contaminated, and if the water was used for washing the kitchen utensils (upon which point it is impossible to get positive information), this would be the most likely source of infection" [96]. But his main concern was the larger public welfare, of which it was remembered that "when typhoid fever was prevalent in this country and was filling the wards of our hospitals and taking such a large toll in death, it was Osler . . . [who] said: 'Typhoid fever, the monster that destroys the best of our sons and claims the fairest of our daughters; are we to let it continue or stop it?' Then Osler outlined . . . measures to control this devastating disease" [97].

Typhoid also revealed Osler at his most passionate and eloquent. In 1899 he pleaded:

> Year by year we had listened to the Rachels of this land weeping for their fair sons and fairer daughters, not killed by any pestilence that walked in darkness, but by a preventable sickness that

### Table 2. Osler's contributions to the literature of infectious diseases and especially that of typhoid fever, tuberculosis, and pneumonia.

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<thead>
<tr>
<th>Subject</th>
<th>Canadian period (1869–1884)</th>
<th>Philadelphia period (1885–1889)</th>
<th>Baltimore period (1890–1904)</th>
<th>Oxford period (1905–1919)</th>
<th>Totals*</th>
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<tr>
<td>Typhoid fever</td>
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<td>12</td>
<td>31</td>
<td>8</td>
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<tr>
<td>Tuberculosis</td>
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<td>10</td>
<td>20</td>
<td>18</td>
<td>60</td>
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<tr>
<td>Pneumonia</td>
<td>15</td>
<td>14</td>
<td>7</td>
<td>4</td>
<td>40</td>
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<tr>
<td>All other infectious diseases</td>
<td>36</td>
<td>44</td>
<td>91</td>
<td>61</td>
<td>298</td>
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<tr>
<td>Totals</td>
<td>66</td>
<td>80</td>
<td>331</td>
<td>61</td>
<td>298</td>
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**NOTE.** Numbers indicate published articles. Tabulations are based on [43]. Omitted from the analysis are brief autopsy reports and discussions of other physicians' data. In cases of the co-presence of typhoid fever, tuberculosis, and/or pneumonia, data are tabulated according to the first-mentioned disease. *From these data, cases of typhoid fever, tuberculosis, and pneumonia accounted for 58% of Osler's papers concerning infectious diseases during the Baltimore and Oxford periods (combined) versus 45% during the Canadian and Philadelphia periods ($\chi^2$ with Yates' correction = 4.31, $P < .05$). After moving to Baltimore, Osler stopped doing autopsies and became increasingly involved in public health issues.
From the days of Homer, Apollo, the far darter, has been a much more formidable foe than his colleague Mars. . . . To-day the front of Mars is wrinkled, the world is at war, and the problem for the children of Aesculapius is to keep grandfather Apollo from taking a hand in the fray. In this game another member of the family, Hygeia, holds the trump card and gives victory to the nation that can keep a succession of healthily efficient men in the field.

He outlined a program for preventing typhoid fever among troops through surveillance, high index of suspicion, and adequate microbiological support and, with others, studied the efficacy of a triple typhoid paratyphoid vaccine.

8. Be Political When Necessary

The AIDS pandemic, among other issues, reminds us of the occasional need to enter the political fray. Osler usually heeded Oliver Wendell Holmes’s warning that physicians ought not to “dabble in the muddy sewer of politics.” His sense of humor and ability to see both sides of issues made him a poor advocate of causes unless the issue was straightforward, such as parasites in the pork supply of Montreal or meningococci in the army barracks of World War I. But wherever he went he made good politics fashionable. One physician recalled that it was “not in the argument of controversy but in the force of example, by the way in which he lived his ideals and induced others to share them with him.” Another likewise remembered that Osler could incite people or groups of people to do good work, “by the stimulus of his enthusiasm and the magic wand of his encouragement.” However, Osler was fully capable of public displays of righteous indignation. He once lambasted the mayor of Baltimore for the city’s public health problems:

We are sick to death of mayors and first branches and second branches. In heaven’s name, what have they done for us in the past? I can tell you what they have done for us in the thirteen years I have been here. To my positive knowledge they have paved two or three streets east and west, and two or three streets north and south, and, by the Lord Harry! I could not point to a single other thing they have done. . . . Give us a couple or three good men and true who will run the city as a business corporation. It would not take us a year, then, Mr. Mayor, not a year, to get a start on a sewerage system and an infectious disease hospital, and everything else that the public welfare demands.

On February 21, 1900, he counterattacked animal rights activists at a United States Senate committee meeting:

The blood just surged in my veins, Sir, when I heard two men address you to-day, say things which they should have been ashamed to say of the medical profession. . . . With reference to men who train with these enemies of the profession, I say this, that I scorn them from my heart.

Osler’s wide reputation for good humor, good will, and equanimity made such occasional diatribes all the more effective.
One of Osler’s strongest stands came on the issue of full-time versus part-time clinical professors. He protested that having “a group of cloistered clinicians away completely from the broad current of professional life would be bad for teacher and worse for student” [108]. He warned against “the evolution throughout the country of a set of clinical prigs, the boundary of whose horizon would be the laboratory, and whose only human interest was research” [109].

In England he warned students and young physicians that such full-time researchers as Sir Almroth Wright taught a different kind of medicine than was practiced by the venerable consultants of Harley Street: “Stop your ears with the wise man’s wax against the wiles of that Celtic Siren, Sir Almroth, who would abolish Harley Street and all that it represents. There is still virtue, believe me, in that ‘long unlovely street’ and the old art cannot possibly be replaced by, but must be absorbed in, the new science” [110].

Yet ever kindly disposed toward political opponents, he could acknowledge “the brilliant investigations of Sir Almroth Wright in the discovery of immunization against typhoid fever” [99]. Quoting the English historian John Richard Green, Osler said, “One is never very surprised or angry to find that one’s opponents are in the right” [32].

9. Support Organizations

Like today’s infectious diseases specialists, Osler knew the value—indeed the necessity—of participating in local, regional, national, and international medical societies to the extent that he has been called “an organization man” [111]. Cushing’s biography mentions no fewer than 110 associations and societies in which Osler participated at various times, of which 45 were American, 43 British, 13 Canadian, 5 international, and 4 French. By age 32 he was “with regularity among those present” at local, regional, and national medical meetings [112]. Lewellys F. Barker believed that Osler “grasped, as it were intuitively, the newer principles of association and of group organization. . . . More than most he had learned how to live with other men, to discuss without antagonism, to secure co-operation by the subtle psychic process of reciprocal penetration” [113].

Besides supporting existing organizations, Osler started new ones [114]. In 1900 he founded a Laennec Society—possibly the first organization in the world dedicated solely to the study of tuberculosis [115]. Later he patterned the Association of Physicians of Great Britain and Ireland after those groups he had been associated with in the United States [116].

Osler told young physicians, “You cannot afford to stand aloof from your professional colleagues in any place. Join their associations, mingle in their meetings, give the best of your talents, gathering here, scattering there; but everywhere showing that you are at all times faithful students, as willing to teach as to be taught. . . . The passports of your fellowship should be honesty of purpose, and a devotion to the highest interests of our profession, and these you will find widely diffused, sometimes apparent only when you get beneath the crust of a rough exterior” [22]. Moreover, “a man misses a good part of his education who does not get knocked about a bit by his colleagues in discussions and criticisms” [117].

Gregarious by nature, Osler also sought to create good social environments at meetings. One physician recalled how Osler’s friendliness enlivened the lunch hour at a scientific meeting in 1890:

>Catching me by the arm he at once plunged into a lively series of questions as to what I had been doing at the Congress, whom I had met, and how profitable I had found the meetings. . . . By the time we had reached the restaurant only a short distance away, Osler had joined to our happy trio one by one, five other members, each wandering alone, all congenial friends and delighted to have been admitted to our party and thus rescued from the fate of a lonely meal [128].

Those who knew Osler “felt a deep impression that in all activities in medical societies and on behalf of his students he labored solely to inspire them with a love of work for its own sake and for what he felt to be its final effect upon their growth and development” [119]. He knew that organizations, like people, must be accepted as we find them and not rejected when they do not match all of our own expectations [120]. Participation was a duty, for “no physician has a right to consider himself as belonging to himself; but all ought to regard themselves as belonging to the profession, inasmuch as each is part of the profession; and care for the part naturally looks to care for the whole” [117]. The maturing of the organized infectious diseases community in the second half of the twentieth century is thoroughly consistent with this spirit.

10. Be an Idealist

Osler’s idealism explains to a large extent his continued popularity. Like today’s infectious diseases specialists—who seldom if ever choose the field for financial gain [121, 122]—he believed that the choice of a medical career should not be based on expectations of a high income. He had “contempt for the doctor who made financial gain the first object of his work” and even “seemed to go so far as to think that a man could not make more than a bare living and still be an honest and competent physician” [123]. He reminded students, “You are in this business as a calling, not as a business; as a calling which exacts from you at every turn self-sacrifice, devotion, love and tenderness to your fellow men. Once you get down to a purely business level, your influence is gone and the true light of your life is dimmed. You must work in the missionary spirit, with a breadth of charity that raises you above the dead level of a business” [110]. Furthermore, he said, “There is no more potent antidote to the corroding influence of mammon than the presence in a community of a body of men devoted to science, living for investigation and caring nothing for the lust of the eyes and the pride of life” [124].

Part and parcel of his idealism was personal courage. He admired such physicians as Jesse W. Lazear who risked and some-
times lost their lives studying infectious diseases. He wrote: "The unselfish devotion to the good of our fellow creatures, which animates our best work, has given to physicians in every age a spirit which in times of great peril has enabled them to meet the gravest emergencies. No epidemics have blazoned forth in such relief the heroism of our fellows as those of typhus in Europe and of yellow fever in America" [1].

Nor was he a stranger to infectious diseases (table 3). His severe attack of croup in childhood caused his family to cancel their planned trip to Dundas, Ontario, and thereby miss the Dejardins railway disaster of March 19, 1857, in which more than 100 passengers were killed. As an adult he often viewed his illnesses with detachment, taking "sufficient interest in his own maladies to make notes upon them" [125, 126]. While in charge of the smallpox wards of the Montreal General Hospital, he came down with the disease himself: "My attack was a wonderfully light one the pustules numbering sixteen all told, and of these only two located themselves on my face; so that 'my beauty has not been consumed away.'" He wrote of one of his lesions of cutaneous tuberculosis (prosector's wart) that "I persistently refrained from local treatment in order to watch its development" [127].

In December 1916, he had an episode of bronchopneumonia that required him to be confined to his home for a month. He wrote, "I have coughed my Pacchionian bodies loose and split my central tendon in two places" [128]. His final illness began with a cold that progressed to pneumonia with, in his words, "No. 3 pneumococcus & M. catarrhalis—the organisms." This was further complicated by lung abscesses and empyema; between 4 and 5 mL of "stinking pus" was removed, followed by surgical drainage of a large abscess cavity [129–131]. Hemorrhage into the cavity caused his death, which he had faced in accordance with one of his ideals, "to be ready when the day of sorrow and grief came to meet it with the courage befitting a man" [132].

**Table 3.** William Osler’s personal experiences with infectious diseases.

<table>
<thead>
<tr>
<th>Age (y)</th>
<th>Illness</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Croup</td>
<td>Probably saved the Osler family from disaster (see text)</td>
</tr>
<tr>
<td>17 or 18</td>
<td>Osteomyelitis of the tibia</td>
<td>Attributed to a rugby injury; his medical history suggests Staphylococcus aureus infection</td>
</tr>
<tr>
<td>25 or 26</td>
<td>Smallpox</td>
<td>A mild case that occurred despite repeated vaccinations</td>
</tr>
<tr>
<td>18 to 50</td>
<td>Cutaneous tuberculosis</td>
<td>Approximately 8 to 10 episodes resulting from performing autopsies (prosector’s warts)</td>
</tr>
<tr>
<td>Throughout adulthood</td>
<td>Respiratory infections</td>
<td>Some were “bordering on pneumonia”</td>
</tr>
<tr>
<td>67</td>
<td>Bronchopneumonia</td>
<td>Required house confinement for a month</td>
</tr>
<tr>
<td>70</td>
<td>Pneumonia</td>
<td>Resulted in death due to hemorrhage into an empyema cavity</td>
</tr>
</tbody>
</table>

**Conclusion**

William Osler took more pride in advances toward the understanding and control of infectious diseases than in any other aspect of medical progress. In 1913 he said: "Man’s redemption of man is nowhere so well known as in the abolition and prevention of the group of diseases which we speak of as the fevers, or the acute infections. This is the glory of the science of medicine." He even predicted that "before long we may be able to cope with the products of the pneumococcus itself" [35]. He could anticipate neither the spectacular impact of penicillin nor the discovery of the molecular basis of life based on studies with this same microorganism [35, 133]. However, he did anticipate that there would always be new problems. He once reacted to rumors of a doctor surplus by saying that a shrewd old fellow remarked to me the other day, "Yes, many diseases are less frequent, others have disappeared, but new ones are always cropping up, and I notice that with it all there is not only no decrease, but a very great increase in the number of doctors" [76].

And in that spirit Osler concluded his 1896 lecture on "The Study of the Fevers of the South" with remarks that ring true for us a century later, both individually and collectively:

To us as a profession belongs the great glory of the century. Enormous as has been the advancement in material prosperity, and wide-spread as has been the diffusion of benefits from the development of the physical sciences, they can not compare with the progress which has been made in the relief of suffering, and in the prevention of disease. . . . Fever in its varied forms is still with us . . . but it is of almost equal importance to know that the way has been opened, and that the united efforts of many workers in many lands are day by day disarming this great enemy of the race [1].

**References**

5. Freese AS. He was family doctor to the world. Today’s Health 1968;46 (June):39–41.


