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DR. FRANKLIN P. MALL: AN APPRECIATION

THE death of Doctor Mall is so recent and my grief for his loss so fresh that I find myself reflecting on the fruitful and delightful memories of our past association instead of writing out my impressions of his unusual personality.

Doctor Mall came to Johns Hopkins in the late summer of 1893 and just before the medical school opened its doors to the first class of students in the autumn. It was there that we met. I recall vividly my excitement and nervousness when the rumor was circulated about the old pathological building that Mall had arrived. His name had been a tradition among the small group in the department of pathology. A few years earlier, before the hospital had been opened to patients, he had come to the laboratory and as fellow in pathology had performed a miracle of interesting and important studies on the connective tissue foundations of the organs. Fellows in pathology there had been since his time, but no one whose memory was glorified as Mall's had been. We had so often heard him and his work spoken of by Doctor Welch, Doctor Halsted, and others, including the indispensable Schultz, who was for many years presiding genius over the technical and janitorial services of the laboratories and whose commendation carried with us such great weight, that I pictured Mall as quite different from what in actual life he proved to be.

One's fancy—my fancy surely was so—when young is apt to produce its own pictures. In my fanciful portrait of Mall I represented him as large, absorbed, and

rather austere. Never was a fancy more completely and happily shattered. I can just remember our meeting; those who knew Mall well will never forget how engagingly he smiled. It was with one of the best of his smiles that he greeted me.

That event was the auspicious beginning of a warm friendship which never wavered until his death. During the first period of half a dozen years we were in almost daily contact. Later, and after 1900, when I left the medical school to enter the University of Pennsylvania, our meetings were at first not infrequent. I shall never cease to regret the increasing intervals between them which followed my removal to the Rockefeller Institute in New York. Increasing responsibilities and enlarging duties play havoc with one's life, and I feel that I suffered a grievous and now irremediable loss in permitting those circumstances to cut me off to the extent it seemed inevitable they should from association with Mall. To a certain extent, letters took the place of personal contact. Thus I kept more or less in touch with the workings of his restless and constructive mind.

It probably will strike few except his very intimate friends that Mall was by temperament a reformer. He was an uncompromising democrat and hence entertained the firmest belief in liberty in its true and proper sense. Out of this intensity of conviction arose the views expressed in conversation more frequently but not more forcibly than in his addresses, on full opportunity and freedom in university education, both in its pre-graduate and post-graduate aspects. His comprehending and incisive mind was the first, I believe, to appreciate and afterwards to propound that the best of medical educational institutions were half-hearted affairs. That part of the institutions which a quarter of a century earlier had been the weakest—the laboratory branches namely—had been immeasurably strengthened in that short period, during which the previously stronger part—namely the clinical branches—had progressed relatively little. The balance could be struck and must be, even though in the process the old system were, if need be, completely shattered, as much shattered indeed as had been the earlier hybrid combined laboratory and clinical chairs. Out of this conception which Mall propounded, I am almost inclined to say preached to us persistently, arose the present movement, ever gaining force and strength until it has now become almost irresistible in favor of full-time clinical professorships.

It is very interesting to consider just here the extent to which he used others, converts or disciples as they may be called, to diffuse more broadly his reforming ideas. One would search Mall's miscellaneous papers, of which indeed there are notably few, in vain for an exhaustive presentation of the case for the full-time clinical plan. The wide dissemination of the idea by the printed page was left to others, while he maintained the high level of conviction in those coming under his immediate influence by an irresistible fund of logical exposition.

In his delightful essay on his master, Wilhelm His, Mall reveals his attitude toward higher education in its various complex aspects. I wonder how many returned foreign students have kept up an intimate correspondence with a revered teacher extending over a long period of time, like that disclosed by Mall in this essay. The extracts from his letters there published show how well the older man comprehended the younger, as the spirit and substance of the essay shows how the younger man admired and appreciated

the older. There is no doubt that His perceived in Mall rare personal and mental qualities, as he confides to him not only the subjects and trend of work, but his larger aspiration in the wide domain of anatomical research. In the light of the relation there revealed one can surmise the satisfaction and joy with which His, had he lived, would have welcomed the establishment of the Institute of Embryology with Mall as the first director.

In my task of presenting a fragment of the personality of Mall as apparent to his intimate friends and associates, I find myself embarrassed by the many memories that crowd my mind. It is not easy to select episodes. I love myself to think of the period during which he lived, as did the medical officers, in the Johns Hopkins Hospital, for then we were almost constantly together. The small, older group of men—older, that is, than the internes—saw much of one another. Mall, Frank Smith, Thayer, Barker, and I met always at dinner, frequently at breakfast and luncheon, at the small table at the head of the room. There was lively conversation and much variety of theme; and not a little good cheer. A small photographic print still exists which pictures the group; it is chiefly notable for the good likeness of Mall which it presents, showing him as it does in one of his happiest moods.

Mall returned to Baltimore as the first professor of anatomy of the new medical school. The physical conditions surrounding the launching of the medical school were so simple as to be almost austere. Aside from the hospital—a model of completeness at the time—the plan for housing the new departments of the school we should now regard as meager in the extreme. I sometimes think that it may be well to recall from time to time the simple beginnings out of which the great institution of the Johns Hopkins Medical School arose. The only additions made to the hospital buildings to accommodate the departments of anatomy, physiology, and physiological chemistry and pharmacology, were two stories added to the original small pathological building erected as a mortuary for the hospital and already housing the entire pathological department. It was in the upper, or fourth story, of that enlarged building that the complex department of anatomy took origin.

Some one else, who traces the growth of anatomy at the medical school, can tell better than I can how Mall adapted the limited space and facilities at his command to the teaching of anatomy, histology, and embryology, and to the conduct of research. There was no actual break in the continuity of his own investigations, and very soon after the medical classes were taken in he began to produce the new work which in a steady and increasing stream has come out of the anatomical department.

There were not a few obstacles to be overcome in getting the students' work properly started. I recall the shifts he was obliged to make to bridge over the gaps in dissecting until human cadavers became available. This period was for Mall, in many ways, an anxious one. But it was not long before this particular obstacle was overcome, and because of the improvements which he introduced in the preservation of human cadavers, his laboratory soon became the custodian of all the anatomical material employed for dissection and surgical instruction throughout the city.

The kind of teaching which Mall gave to his students has been described; there was no lecturing in his curriculum. He had almost a horror of lectures in anatomy; the idea collided with his fundamental

conception of how such a practical subject is to be acquired. In his views there was one road only to that goal. The student must teach himself in order to learn. Hence there were provided the objects to be dissected, text-books, atlases, models, and time, with a sufficiency but no excess of instructors or guides. He saw no virtue in exhibiting and describing a predissected part, provided the students were given opportunity to dissect for themselves. That this principle is sound no one will, I think, now deny. That its operation has produced a remarkably large number of superior, independent, and broad anatomists, the history of his department amply shows.

But a confusion of method and man is often made with disastrous consequences. It is easy to imagine this mode of teaching anatomy adopted widely without yielding the results which Mall obtained. To put the method into effect would doubtless represent a great advance over the old system, but without a strong, able teacher and guide, such as Mall was, the phenomenal results which he achieved would not be attained. In other words, he was a sound innovator because he was a strong man. He was a successful leader in anatomy because he was learned and original. He has left a rich heritage to science through his own labors and those of his pupils, because to all his other qualities he added the rare ones of wisdom, kindness and generosity.

Our proximity in the pathological building brought us into frequent association. In the early days of the medical school, Mall often attended the autopsies, many of which I performed. His active interest in the pathological phenomena continued throughout his life, in part possibly as the result of the year spent as fellow in pathology under Doctor Welch. But in fact he did not disassociate, as is often erroneously done, facts of pathology from those of anatomy. Being naturally inquisitive in regard to the relation of cause and effect in respect to the unit forms of organs, he was also prone to inquire into the effects of causes in their nature pathological.

At about the period when Mall was studying the lobular unit of the liver I was induced to attempt the application of some of the methods he worked out to cirrhosis of that organ—a mere illustration of the way in which two related departments through him were made to react on each other.

I imagine that few who knew Mall even quite well realize with what intensity of absorption and application he would work at a problem once he had gripped it, as one might say. In temperament he was naturally reflective. Hence there occurred periods during which he appeared to be doing little in his laboratory. At such times he would become possessed with the impulse to roam about the building or out into the city or into the adjacent country. It was remarkable that when under the influence of those moods he did not seek solitude so much as another form of activity. I was not infrequently taken away by him for a stroll through East Baltimore, and on these expeditions I acquired quite a knowledge of that part of the city. They were in many ways extremely interesting occasions, for during them he often talked his best and sketched advanced ideas on educational and other reforms, as well as on problems of research. I think Mall never dreamt idly. He was possessed of a romantic imagination, but it was both controlled and constructive. To not a few who did not understand him well his ideas sometimes sounded extreme, but they invariably rested on real foundations,

as is now evident since so many of them have been carried into practical affairs.

At other times he worked out problems in his laboratory with consuming intensity. It would seem as if while under what I have called the spell of his reflective mood, a problem would formulate itself more definitely, or some barring obstacle give way to a revealed point of view. However that may be, my notion was that the periods of reflection were signs that he would attack a new or solve an old problem; and I always looked for new ideas and accomplishments when the mood changed.

If I have at all succeeded in revealing Doctor Mall as he appeared to me, then I have presented to you a complex personality. The remarkable thing is the way in which all the pronounced qualities that characterized him were fused into a simple, harmonious, kind and lovable individuality. I have referred already to Mall's democratic spirit. He was an intense lover and active exponent of liberty. His belief and confidence in freedom extended far beyond the confines of the university and laboratory, and into the world of politics and government. Freedom within the university he held as the first condition of the successful struggle of the forces of light over superstition and darkness. Within the walls of his laboratory the fullest liberty prevailed. Once outside the realm of the prescribed task for training, each man followed the bent of his own talents and tastes. However, his principles as well as his practise sharply differentiated between liberty and license; hence the rise under him of a group of strong, independent, but sound teachers and investigators. Mall would probably have combated the suggestion that he produced a school of anatomists, using the term in its usual significance. He would probably have insisted that he merely continued in America the system which he pursued or saw in force in Switzerland and Germany. But I believe rather that he made such definite contributions to the higher education and training of anatomists, and produced in, alas! a few brief years so large a number of varied and capable teachers and investigators, as to mark a new era in the history of higher educational endeavor.

I said that his deep convictions of freedom carried him into the wider domain of social liberty. Mall never propagandized on this subject. He however felt intensely about it. It is noteworthy that with all the admiration for the freedom of migration from university to university and the wide election of subjects and ideas in the German university, to the social and political conditions of that country he was antipathetic. To so strong a "democrat," to use that term in its wider and better significance, a studied paternalism and imperialistic tendency were deeply unsympathetic.

Mall's sincerity, self-effacement, and never-failing consideration were at the root of his noble qualities and made companionship with him a rare privilege. I have already spoken of my own good fortune in possessing in some degree his intimate friendship. It is a rare possession indeed and one to be cherished. But I owe him also an educational impress, none the less valuable because of its subtle nature. I am of the opinion that his pupils were influenced by this unusual quality which because of its elusiveness seems an emanation—so little was it given off or received with immediate conscious perception.

Mall was absorbed in ideas. They formed the substance of his serious talk, but he was by no means a stranger to the lighter side of human relations, for he possessed a gentle and engaging humor

which might even, when provoked, become a little biting. It took time and some skill to penetrate an outer film of reserve which arose from innate modesty and shyness, but once beneath that protective covering, one readily discovered in him a simple, idealistic and gifted person of many sides, possessed of an almost miraculous power to stimulate students to put forth their best efforts. His memory and example will long survive in the achievements of his students and associates, in the broad ideas which he disseminated, and in the admiration and affection which he inspired.

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FRANKLIN PAINE MALL: A REVIEW OF HIS SCIENTIFIC ACHIEVEMENT[1]

To those who are familiar with the history of medicine in this country, it is a matter of common knowledge that at the time Dr. Mall began his career, thirty years ago, anatomy in America had no scientific standing—a mere tool of surgery with but a single method, that of dissection. He left it where it must be in any community where medicine is progressive, one of its greatest sciences. He left it richly endowed with technical methods, a science so truly fundamental that workers in every other branch of medicine are constantly and increasingly returning to it, both for methods and for results. The vision of this change must have been his while he was yet a student for he wrote in one of his letters:

> My aim is to make scientific medicine a life work. If opportunities present, *I will*. This has been my plan ever since I left America and not until of late (since having received encouragement) have I expressed myself. I shall no doubt meet many stumbling blocks, but they are anticipated.

Sweeping aside the traditions of the dissecting room, he first created conditions under which this change could develop, and then devoted himself to scientific achievement and to the type of teaching in which he was profoundly interested. It was one of his oft-repeated maxims that the best and perhaps the only great way to teach is by example. With the ideal of scientific work as his goal, he has left us an example so rich in ideas, so varied in technical methods and so representative of the range of anatomy and embryology, that a study of his work is both an inspiration and an education.

His first undertaking in the field of research serves well to illustrate his independence of thought which, to those who knew him, was most striking. During the winter of 1885 he began his scientific work under His at Leipzig, who gave to him a problem connected with the gill-arches in the chick. In this study he came to the conclusion, now generally held, that the thymus arises from the endoderm of the pharynx, notwithstanding the fact that His held the view that it came from ectoderm. This work was given to His as Dr. Mall was leaving for Baltimore and was accepted for publication. In the next number of the journal of which His was editor, there appeared a second communication from the latter, strengthening his own point of view, but announcing that a different opinion would be published by one of his pupils in the next number. When Dr. Mall's article appeared, it was with a damaging footnote by His, to the effect that the independent character of the results was obvious. Two years later His restudied the region in a human embryo and found that Dr. Mall's conclusions were correct. He gave due acknowledgment of this in an open letter to

[1] Address given at a meeting in memory of Franklin Paine Mall held at the Johns Hopkins University, February 3, 1918.