E.B. TITCHENER AND AMERICAN EXPERIMENTAL PSYCHOLOGY

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On July 8, 1892, G. Stanley HALL, then president of Clark University, hosted a small group of academic and professional men in the parlor of his Worcester, Massachusetts home. The meeting had been called for the purpose of discussing the advisability of organizing a society for the promotion of the "new psychology". The consensus seems to have been reached rather quickly in the affirmative -the discussion lasted only between 10:00 am and lunch. With that decision the American Psychological Association was founded. Twenty-six men were listed in the original roll of membership but before the meeting was closed, five other names were added. The makeup of the final list of 31 covered a broad spectrum of professionals -educators, physicians, alienists (as psychiatrists were called at the time), philosophers and psychologists. They were drawn together by a common interest in the development of psychology, although not necessarily that of Wilhelm WUNDT's new psychology. The last name on the list was that of an unknown Englishman who had just completed his work in the laboratory of Wilhelm WUNDT and who was to take up a position at Cornell University in the fall -Edward Bradford TITCHENER.

Just about the time that HALL was convening that meeting in his parlor, TITCHENER was stepping off the Dover boat train from Calais onto the soil of his

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native England. The day before, he had said a final good-by to WUNDT and to Leipzig laboratory. He was to spend the summer in England as an extension lecturer in Biology at Oxford to earn money for the passage to the United States. TITCHENER was apprehensive about the position at Cornell and about traveling to the wilds of New York state. However, his plans were to stay in America only long enough to await an opening at Oxford. TITCHENER's wait in America would last the remaining 35 years of his life. Neither he nor anyone in that little group in G. Stanley HALL's parlor had any idea of the impact that TITCHENER and his Cornell University department would have on the development of systematic and experimental psychology in America. It is with TITCHENER's arrival at Cornell in 1892 that we can date the beginning of the epoch of American experimental psychology and TITCHENER can be viewed as one of the major "sparks" that ignited the era of systematic psychology in America. By the time of TITCHENER's death in 1927, the writer of his obituary could accurately state the following:

> The death of no other psychologist could so alter the psychological picture in America. Not only was he unique among American psychologists as a personality and in his scientific attitude, but he was a cardinal point in the national systematic orientation. The clear-cut opposition between behaviorism and its allies, on the one hand, and something else, on the other, remains clear only when the opposition is between behaviorism and Titchener, mental tests and Titchener, or applied psychology and Titchener (BORING, 1927).

But, in 1892, E.B. TITCHENER was only a name at the bottom of the American Psychological Association's membership list in so far as American psychology was concerned.

The new psychology had as its "new" aspect, experimentation, but at the time of HALL's meeting, most of those identifying themselves as psychologists gave only lip service to experimentation and some, like William JAMES, were actually hostile to it. Most of the original members of the American Psychological Association would have agreed in part or in whole with the basic tenets of 19th century faculty psychology. That view, in general, was the study of mind, but mind not defined in WUNDT's terms as ideas or contents of experience, but as something substantial, a real entity or the faculties of a real entity that did things for us -a thinker, a feeler, a doer; it was the heritage of the powerful influence of Scottish faculty psychology that had overwhelmed American thought in the late 18th century. It was a utilitarian view, much in keeping with the utilitarian bias that shot through all aspects of American life. William JAMES, in attempting to come to terms with the new European psychology had really crystalized the nucleus of this American utilitarian view in his functional psychology. It was a massive conglomeration of European and home-grown views, often merely repackaged and renamed but as often a genuine mutation, bringing forth a type of psychology that was characteristically American in flavor. JAMES had made a major departure from the past, however, in his presentation of a naturalistic approach to mind, separating the concepts of mind and soul while unifying with brain functions. JAMES's *Principles of*

Psychology had been in print only two years when TITCHENER arrived at Cornell, however, and the full impact of JAMES's naturalistic representation of mind was still to be realized. By 1892 most of the original members of the American Psychological Association and certainly the majority of Americans involved in psychology under whatever title taught a psychology that was still a shapeless, amoeba-like collection of conflicting ideas, with theologically-tinged concepts often uncritically mixed in with Darwinian and Lamarckian evolutionary view. In this type of psychology, mind-as-substance was used interchangeably with WUNDT's mind-as-contents with little or no realization of the conflict.

There was genuine experimental work, of course, but the experimental method and the laboratory were not central to psychological investigations. William JAMES had argued in his *Principles of Psychology* against the laboratory as the primary source of information, still preferring the age-old methods of philosophical reflection (JAMES, 1890). In 1892, most of the 19 laboratories in existence were used primarily for demonstrational purposes and not for original research (GARVEY, 1929). One psychologist of the next generation described the American psychological scene about 1892 as "like Eden before the fall" (DALLENBACH, 1965). While this view requires us to cast TITCHENER as the serpent, he was certainly a primary force in the major shifts in American psychology away from the "armchair" and toward the laboratory.

TITCHENER was called to Cornell University because an old classmate at Leipzig, Frank ANGELL, who had gone to Cornell in 1890 had accepted a position at the new Stanford University in California for the fall of 1892 and suggested TITCHENER as his replacement at Cornell. TITCHENER had been trying for a position in England but there were no positions available there for experimental psychologists and what supporters he might have had, such as James WARD at Cambridge, had developed an anti-Wundt bias. When the call came for the position at Cornell, TITCHENER hesitantly accepted. So, in the fall of 1892, Edward Bradford TITCHENER arrived at Cornell, imbued with all the precepts of the English gentleman and with all the standards of the German *Gelehrter* and, most importantly, with the missionary zeal to carry the new, experimental psychology into the wilderness of America.

TITCHENER was not the first of WUNDT's students to go to America, of course. G. Stanley HALL, J. McKeen CATTELL and several other Americans had studied at Leipzig. Of all the students of WUNDT in America, however, only TITCHENER would hold fast to the basic concepts of the study of mind as the contents of experience. The Americans had come back from Germany with enthusiasm at least for the possibilities of an experimental psychology, if not for all the detail of WUNDT's system, just as William JAMES had been stimulated in reading WUNDT's early books. The content of WUNDT's teaching however, seems not to have survived the trans-Atlantic voyage, or if so, fell victim quickly to the American atmosphere. The kind of research these American Wundtians conducted and those of their students quickly shifted from the study of the contents of mind, as WUNDT had defined the new psychology, to mind-in-use, the psychology of mental function. The thin veneer of a year or two of Wundtian orthodoxy was not sufficient to stand up to a lifetime of exposure to the principles of the American faculty and functional psychologies.

Why should TITCHENER have been the one to hold fast?. He had been exposed to the functional ideas of the British evolutionists -even to those of Francis GALTON, perhaps the closest European counterpart of the American functional psychologists. One possibility is that TITCHENER's solid training in the logic of the British empiricist movement, particularly in the thought of David HUME and James MILL, with their emphasis on elementary analysis of experience and mind being composed of ideas, took the place in TITCHENER's thought of the philosophy of the Scottish faculty school which permeated the background of American faculty psychology and was the "indigenous" psychology of TITCHENER's American colleagues. Whatever the reason, TITCHENER did hold fast to the structural basics of WUNDT's psychology departing from it only to make his psychology more consistently structural than WUNDT, eliminating WUNDT's tendencies toward the functional and eliminating as well accesssory concepts not present in the contents of experience. TITCHENER never faltered in his belief that WUNDT's basic approach of mind as being the contents of experience was THE psychology.

TITCHENER was shocked at the state of American psychology. To him the American functional psychology was little more than a watered down Cartesianism combined with a popular phrenology. He found his students largely monolingual and because of this cut off from the untranslated German classics in the new psychology. In 1892 there were only an handful of books of any consequence in English. J. Mark BALDWIN had published his *Handbook of Psychology* in 1889; John DEWEY put forth his *Psychology* in 1886; George Trumbull LADD published his Americanized version of WUNDT (but with the addition of a substantial soul) in 1887; and, of course, there was William JAMES's *Principles of Psychology* in 1890. Unless the American student of that time had the British writings of James and John Stuart MILL, Alexander BAIN or George G. STOUT, his concepts of psychology would be based on the above American works or even the earlier philosophical works of Borden BOWNE, Noah PORTER or James McCOSH (EVANS, 1983).

TITCHENER saw it as his first task, then, to introduce the American students to the German literature of the Wundtian strain. This he did by a program of translation of WUNDT's *Human and Animal Psychology* in 1894, Oswald KÜLPE's *Outlines of Psychology* in 1895 and eventually, the first volume of WUNDT's *Grundzüge der physiologischen Psychologie.* TITCHENER also influenced others to translate still more of the German literature while he put forth his own version of the new psychology in his *Outlines of Psychology* in 1896.

A second task was to produce experimental psychological research using the Wundtian methods and concepts and to gain a reliable source for their publication. In 1894 TITCHENER joined G. Stanley HALL on the editorial board of *The American Journal of Psychology*. He soon gained editorial control over a third of every issue and, at last, in 1921, he gained sole editorship. TITCHENER filled the *American Journal of Psychology* with the experimental work from the Cornell laboratory and from the work of researchers elsewhere working in the Titchenerian mold.

A third task, and to TITCHENER perhaps the most significant, was the establishment of a systematic psychology in America that was consistently structural

in form and dealt entirely with the contents of experience. It is not possible to treat TITCHENER's systematic psychology in detail but some basic points should be made. Firstly, TITCHENER was not slavishly Wundtian. While at Leipzig, TITCHENER and his friend Oswald KÜLPE had read and discussed Ernst MACH's *Analysis of Sensations.* It became clear to them that MACH's positivistic view gave an alternative to WUNDT's use of "accessory" concepts such as the Doctrine of Creative Synthesis, the Doctrine of Apperception and similar concepts. WUNDT was not positivistic; that is, he did not believe that immediate sensory experience contained all of the material required for a psychology of mind. WUNDT brought time and space into his system, for instance, not as directly experienced by way of the senses *as* time or space but as synthetic creations, inferences derived from sensory qualities and intensities. MACH held, however, that all the contents of mind are directly derived from sensory experience and that space and time are directly experienced. It was this positivistic divergence on the part of TITCHENER that allowed him to deal with higher mental processes directly by use of experiment. WUNDT, of course, had to abandon the experimental method in the higher mental processes.

However, TITCHENER was not so much interested in fighting WUNDT as he was in making his structural psychology visible in America as a viable alternative to the American functional view. It is quite likely that TITCHENER did not make his differences with WUNDT as obvious as he might have. In the early days, at any rate, the appearance of Wundtian orthodoxy was an asset to TITCHENER. Keep clearly in mind that TITCHENER and his students represented a tiny minority in American psychology not only in the beginning but during his entire 35 years in America. It is worth remembering because this minority was so vocal that it had influence far beyond its numbers, which is just what TITCHENER was counting on. To take hold, it would be necessary for TITCHENER to present a highly organized, logically arranged presentation of the new experimental psychology to contrast with the pervasive but nebulous American view.

In 1896, TITCHENER was ready to draw the battle lines with functional psychology. His *Outlines of Psychology,* published that year, presented the new psychology in TITCHENER's structural trappings. With that and particularly with his articles, "Postulates of a Structural Psychology" (TITCHENER, 1898) and "Structural and Functional Psychology" (TITCHENER, 1899) TITCHENER made his formal challenge to American psychology. More than anything else, the structural "manifesto" that these writings comprised was a declaration of the territorial demarcations of scientific psychology. TITCHENER was never very happy with the term "structuralism" but it was a useful term at the time to make contrast with the functional psychologies. In these early publications in America, TITCHENER's interest was in pitting the structural and the functional approaches against each other. He was careful to associate the experimental approach with the structural position, and under the term "descriptive psychology", the old-fashioned "armchair" philosophies of the functional psychologists. TITCHENER wanted a clear distinction between the two positions:

> The primary aim of the experimental psychologist has been to analyze the structure of mind; to ravel out the elemental processes from the tangle of consciousness... to isolate the constituents in the given conscious formation. His task is vivisection,

but a vivisection which shall yield structural, not functional results. He tries to discover, first of all, what is there and in what quantity, not what it is there for. Just as experimental psychology is to a large extent concerned with problems of structure, so is "descriptive" psychology, ancient and modern, chiefly occupied with problems of function. Memory, recognition, imagination, conception, judgment, attention, apperception, volition and a host of verbal nouns..., connote, in the discussions of descriptive psychology, functions of the total organism...

It cannot be said that this functional psychology.., has been worked out either with as much patient enthusiasm or with as much scientific accuracy as has the psychology of mind structure. It is true, and it is a truth which the experimentalist should be quick to recognize and emphasize, that there is very much of value in "descriptive" psychology. But it is also true that the methods of descriptive psychology cannot, in the nature of the case, lead to results of scientific finality (TITCHENER, 1898).

The challenge was clear; if one wanted to follow the older, functional, "armchair" approach so long in evidence in America, that was all right, but one must be warned that it is not a modern, scientific psychology. Functional psychology, because of its emphasis on what mind does for us is really more technological than scientific, according to TITCHENER's view of science. The experimental psychology, the psychology of the future, according to TITCHENER's manifiesto, is not this functional psychology but his structural psychology.

TITCHENER in opening his attack stated that a psychology of mental structure must predede any psychology of the function of mind. "We shall never understand what mind can do until we have grasped what mind is" (TITCHENER, 1896, p. 22). In his "Structural and Functional Psychology" (TITCHENER, 1898), he took a step forward in the attack on functional psychology. He reiterated the difference between the natures of the structural and functional psychologies, but he now seemed to cast doubt on the acceptability of the type of introspection used by functional psychologists. Introspection, of course, TITCHENER had put as the foundation for every psychology based on observation.

Introspection, from the structural standpoint, is observation of an is; introspection, from the functional standpoint, is observation of an Is-for. Unschooled introspection tends almost irresistibly, then, to the introspection of an Is-for... In other words, unschooled introspection is apt to be an introspection, not of psychological materials at all, but of meanings (logical function) or of values (ethical function)...As for... introspection through the glass of meaning, that is the besetting sin of the descriptive psychologist (TITCHENER, 1899, p. 291).

TITCHENER was pointing out that the functional psychologists were not studying pure experience at all, but a congery of meanings that attracted themselves to experiences. TITCHENER made the use of the concept "stimulus error", and accused the functional psychologies of falling into it, allowing interpretation, logic, prior learning, assumptions,

anything of the sort, to determine this description of an experience. It is the same argument he would use against all psychologies that use broad phenomenological description.

TITCHENER's attack seems to have put many of the functional psychologists on the defensive. There was a need, it appears, to combat this new strain of psychological thought from across the Atlantic. It is clear that at least part of this reaction to TITCHENER's manifesto was a move to formulate functional principles into a coherent school of thought and this movement came to fruition with the school of functionalism at the University of Chicago under the direction of James Rowland ANGELL, a relative of the Frank ANGELL who was responsible for getting TITCHENER to America. There were many factors behind the creation of Chicago functionalism, to be sure - the move in psychology as in all disciplines toward more formalized organization, for instance, -but the threat of TITCHENER and his vocal minority and the positive influence of his promotion of the laboratory and its hope of separating psychology from philosophy as a "real" science was certainly significant.

A fourth task that TITCHENER took on himself was the promotion of the laboratory itself, both as the primary source of psychological information and as the center of psychological instruction. While psychology had spread widely in colleges across the country by 1900, the number of qualified teachers of the subject -at least in the scientific, experimental form -had not kept pace. It was possible to learn theories and speculations from the available textbooks, but not how to do a psychological experiment. Between 1901 and 1905, TITCHENER wrote his monumental four-volume *Experimental Psychology* usually called "Titchener's Manuals". Of these four volumes, two were written for the student and two -the thicker of the two- were written for the instructor These volumes were what the first few generations of American experimental psychologists used to learn their experimental methodology, whether they were structuralists, functionalists or behaviorists. Even John B. WATSON, founder of behaviorism, who would reject virtually every aspect of TITCHENER's psychology, paid tribute to the experimental training he received through TITCHENER's "manuals":

> (J.R.) Angell and (H.H.) Donaldson have been like parents to me and I am sure that they will live in my memory as long as I live. It is an intellectual, social and moral debt...I am not so sure that I do not owe you as much as I owe them. I think if I had to say where the stimulus for hard persistent research came from I should have to point to you (WATSON, 1908).

Another means of solving the problem of untrained teachers and researchers was to produce trained ones. This TITCHENER did zealously, carefully giving them a superior training in both the content and methodology of psychology. He then carefully placed his doctoral students in strategic locations in colleges and universities around the nation in the hope that, with their training, they would soon rise to the top of their departments. This was during the time when departments of psychology were becoming independent of their parent philosophy departments and TITCHENER seems to have hoped that in time, a Titchenerian would head up most departments of psychology in the country and that the prescribed psychology in those departments would be Titchenerian. The plan did not succeed, of course, at least not in the way TITCHENER seems to have

intended. The failure of this plan was due to the same reasons WUNDT's American students deserted his psychology. TITCHENER's students came from the same, deeply ingrained American functional view below the veneer of his structural teachings. During his lifetime, TITCHENER was relatively successful in keeping his former students "in line" with his own ideas, at least in public. This he did by a voluminous correspondence and personal contact at the meeting of his Experimentalist Society. Even with this leverage, he was not always successful in steering his students from "error". As years went on, the students came into their own as senior psychologists and TITCHENER's grip loosened somewhat, allowing their functional inclinations to como to the fore. After TITCHENER's death in 1927 the hold was completely broken and most of the "Titchenerians" shifted towards the psychologies of the functionalist or behavioral stripe. Some of the more faithful Titchenerians, seeing no future in TITCHENER's psychology, left psychology entirely. Edna HEIDBREDER calls TITCHENER's psychology "a magnificent and enlightening failure" (HEIDBREDER, 1933). It may be true that TITCHENER's systematic psychology was a failure, as all systems are failures in the long run. Certainly, his plan to "take over" American psychology and make it Titchenerian was a failure but it was also unexpected success. Even though TITCHENER was unable indelibly to stamp his systematic psychology on the American scene, his students were imprinted with the belief that the experimental method and the laboratory were the primary and perhaps the sole source of reliable scientific knowledge. What they taught their students in their well-placed departments was laboratory psychology. Anyone who has ever been taught by a TITCHENER student or a student of a TITCHENER student can verify that the message has remained consistent. In that way, TITCHENER succeeded completely. The American functional psychology became experimental and the basic methods underlying structural laboratory psychology could be generalized to other areas including behavioristic psychology and even to applied psychology.

So TITCHENER's prime contribution to modern psychology was not as he intended, his structuralist system, although fragments of his attributive dimensions of sensations remain in every elementary textbook of psychology that deals with sensation and perception. What TITCHENER did was to break the back forever of the influence of the "armchair" psychologist of the 19th century. His emphasis on experimentation as the prime method of psychological investigation and his demonstration that psychology could be thoroughly experimental without accessory methods or doctrines has been a pervasive influence in American psychology throughout this century. It is ironic that TITCHENER often has been represented as a philosopher and not a psychologist in the "real" sense. TITCHENER, however, perhaps more than WUNDT, helped to extricate psychology from its last tethers to the apron strings of philosophy and set it on its way as a laboratory-centered discipline.

SUMMARY

Edward Bradford TITCHENER (1892-1927) was a major force in the early years of American experimental psychology. His influence is traced with his contributions toward making American psychology laboratory centered.

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