

## FECHNER'S INFLUENCE IN AMERICA: LITTLE-KNOWN WORK OUTSIDE PSYCHOPHYSICS<sup>1</sup>

HELMUT E. ADLER  
Yeshiva University  
New York, NY, U.S.A.

### RESUMEN

Este artículo analiza ciertas líneas de influencia de Fechner en América, ajenas a la Psicofísica. En concreto como satírico, físico (e incluso químico), filósofo, fundador de la Estética Experimental, y como investigador de los fenómenos psíquicos.

### ABSTRACT

This article analysed the Fechner influence in America. Aside from his psychophysics, we know Fechner also as a satirist (as Dr. Mises), a physicist (and even a chemist), a philosopher, a founder of experimental aesthetics, and as an investigator of psychic phenomena. In his day, all of these facets of Fechner were well known and appreciated in America.

### INTRODUCTION

Gustav Theodor Fechner (1801-1887) was a versatile man (Boring, 1950). Today, 100 years after his death, we remember him primarily as the author of elements of psychophysics (1860/1966). He was the originator of the first successful methods of psychological measurement, and thus paved the way for an experimental psychology. Even though his psychophysics had to face many vicissitudes before being accepted in America, it ultimately became so well integrated into main stream psychology, that his method are often quoted without attribution in many current textbooks (Adler, 1977; 1980).

Aside from his psychophysics, we know Fechner also as a satirist (as Dr. Mises), a physicist (and even a chemist), a philosopher, a founder of experimental aesthetics, and as an investigator of psychic phenomena. In his day, all of these facets of Fechner were well known and appreciated in America.

---

<sup>1</sup>A longer version of this paper was delivered at the symposium in memoriam Gustav Theodor Fechner (1801-1887), Karl-Marx-University, Leipzig, German Democratic Republic, 6-10 July, 1987.

Quoting Boring's *History of Experimental psychology* (1950): "This then was Fechner. He was for seven years a physiologist (1817-1824); for fifteen a physicist (1824-1939); for a dozen years an invalid (1839 to about 1851); for fourteen years a psychophysicist (1851-1865); for eleven years an experimental estheticist (1865-1876); for at least two score years throughout this period, recurrently and persistently, a philosopher (1836-1879); and finally during his last eleven years, an old man whose attention had been brought back by public acclaim and criticism to psychophysics (1876-1887)..." Also in Editor's introduction, Fechner, 1966, p. XVII).

Although these varied activities at first appear to follow disparate directions, there is a unifying thread connecting them. It is Fechner's philosophy. A descendent of German idealism, it provided a humanistic and spiritual framework, within which a physical and materialistic universe could be accommodated.

By attributing a kind of consciousness to plants, the inanimate world, even the earth itself, he attempted to overcome a perceived bias in the philosophy of his day toward a materialistic point of view. Fechner attempted to relate the physical and the spiritual as two sides of the same entity, the concave inside and the convex outside of a circle, as he put it. Then, by applying the logic of science and the precision of measurement, he attempted to relate the two sides, always aware of the spiritual aspect being functionally dependent on the material aspect. It is therefore not surprising that in Fechner's major statement of his philosophy, his *Zend-Avesta* (1851), we also find the outline of his psychophysics.

Although Fechner is best known today as the founder of psychophysics, his mysticism and speculative philosophy appealed to contemporary Americans, who felt that the forces of materialism were setting the upper hand. His "Little Book of Life after Death" for example, came out in two English translations, a 1904 version by Mary C. Wadsworth with an introduction by William James (1904/1982) and a 1906 translation by Hugo Wernecke, yet his "Elements of Psychophysics" only appeared in 1966. (Only volume 1 has been published).

## FECHNER AS SATIRIST

Turning now to specific examples of Fechner in America, we look in vain for mention of Fechner (or Dr. Misses) in American literature on satire. Fechner, under his pseudonym, had used his satirical writings as attacks on the medical sciences and materialistic philosophy of his day. The language barrier, Fechner's ponderous style, and perhaps even the light-hearted way in which he dealt with major issues may be at fault. To Fechner, however, the

topics were serious, and like the ideal shape of angels, for example, they may turn up later in Zend-Avesta or other philosophical works.

### **FECHNER AS PHYSICIST (AND CHEMIST)**

Fechner, the physicist was well-known in America (see winter, 1948/1950). He rates at least a footnote in contemporary physics texts. In his physical experiments, Fechner was able to confirm Ohm's Law in a series of 135 separate experiments carried out in 1829 and 1830, supported only by his own means.

Fechner had solved the problem of measurement, that had stumped Ohm, by using methods first employed by Jean-Baptiste Biot (1774-1862), a French physicist of the first rank. Fechner had translated both the first, and then the second edition of Biot's a physics text, adding considerably of his own work to the second edition. He also did chemical experiments, particularly on Bromine, and translated Louis Jacques Thenard's (1777-1857) text on theoretical and applied chemistry.

His work on electrical circuits rates so high that Ohm's Law may easily have become known as Fechner's Law. Fortunately for psychologists, it did not happen, as they could have become mightily confused. It is also of interest, that he was the first to propose the use of electric currents to send messages by wire. It was only one year later that Friedrich Gauss and Wilhelm Weber perfected the first telegraph in Göttingen.

Fechner's successes made him the choice for appointment to the chair of physics at Leipzig university in 1834, despite the fact that he had never had any formal education in physics.

### **FECHNER THE PHILOSOPHER**

Fechner resigned his position in 1840, as the result of his breakdown and never took up physics again. Interestingly, Wilhelm Weber, who himself had resigned from his university, due to a conflict over civil liberties, succeeded him.

After his recovery, Fechner pursued his interests in speculative philosophy full-time. His freedom to teach any topic he chose, also gave him the time to follow-up the other fields for which he is known.

His philosophy, a complex pantheistic system, had actually been formed over many years, going back to his Habilitation, the "Premises", in 1823. (*Premissae ad theoriam organismi generalem.*) Its first important

expression came in Nanna in 1848 and its full exposition occurred in "Zend-Avesta" in 1851.

Fechner's stand against the materialistic philosophy of his day found a ready audience among similarly inclined philosophers. In America it was particularly William James who took up Fechner's cause. James had not taken kindly to psychophysics, which he considered "moonshiny" (in a letter to G.S. Hall in 1880, see James, H., 1920) and "a dreadful literature" which could be bored". (James, W., 1890, vol I, p. 192f). But he found a close affinity to Fechner as philosopher.

James considered by historians as a premier figure in both psychology and philosophy, devoted a chapter in "A pluralistic Universe"(1909) to fechner's philosophy. James tried valiantly to explain to his readers Fechner's concept of the earth-soul, the hierarchy of consciousness, and his religious pluralism. He highly recommended Fechner's philosophy to others. Thus in 1908 in a letter to Henri Bergson, the French philosopher, known for his concept of the *clan vital*, he queried: "Are you a reader of Fechner?... He seems to me of the real race of prophets and I cannot help thinking that you, in particular, if not already acquainted with this book (i.e. Zend-Avesta), would find it very stimulating and suggestive. His day, I fancy, is yet to come." (James, H., 1920). James recognized three similarities of his own ideas to Fechner's as expressed, for example, in a letter to Thomas Mitchell Shackleford, chief justice of Florida in 1909: "I have just finish (sic!) reading the proof sheets of a book by Douglas Fawcett (author of " The riddle of the universe") which runs on lines most astonishingly congruent with Bergson's, Fechner's and mine." (Scott, 1986).

## PSYCHIC RESEARCH

James and Fechner also shared a common interest in psychic phenomena. G.S. Hall, who was living next to Fechner while studying with Wundt in Leipzig, wrote to James in 1879: "Fechner is a curiosity... He has forgotten all his "Psychophysik" and is chiefly interested in theorizing how knots are tied in endless strings and how words can be written on the inner side of two slates tied together". (Perry, 1935). But James was in sympathy with Fechner's ideas. He too believed that an individual might survive after death in traces of his actions left on the outer world.

He "gladly accepted" the translator's invitation to "furnish a few words of introduction" to Fechner's *Little book of life after death* (1904 translation by Mary C. Wadsworth, pp. vii-xix). Of Fechner's "day view" (James called it daylight-view), contrasted with the "night view" the call for a spiritual, anti-materialist philosophy, James predicted that it would become "scientifically fashionable."

Regarding psychic phenomena, James backed Fechner's ideas with his considerable prestige. As Fechner expressed it in *Zend-Avesta* and elsewhere, every act must leave its traces in a material universe. The cosmos is therefore changed to some degree, however slight, by every act.

After death, these traces keep on existing in the shape of all the records of a person's actions that remain. (See Murphy and Ballou, 1966).

## EXPERIMENTAL AESTHETICS

Fechner's notions about immortality had popular appeal, but his other late interest, the experimental study of aesthetics, had greater impact on American psychology. There were two aspects to Fechner's aesthetics, his theoretical principles and the empirical studies of people's preferences on which his theories were based. He called it "aesthetics from the bottom up". Fechner's principle was one of unity in diversity. "What is psychologically simple comes out of physical variety", he stated in 1879.

One outcome of this principle was the supposed preference for the proportions of the golden section:  $a/b = b/a+b$ . Fechner tested this idea in various ways, inspired by a suggestion of Adolf Zeising in 1854, regarding the relative proportions of different parts of the body in painting the human figure (see Kalkofen, 1987). Fechner used methods derived from his psychophysics, such as the method of paired comparisons, to test a wide range of objects (Fechner, 1876).

The golden section specifically, and experimental aesthetics in general, spread quickly across the Atlantic. Many American and Canadian psychologists who are well-known for their other achievements, were inspired to take up the topic. Lightner Witmer, later famous as America's first clinical psychologist, published in 1893, while still in Wundt's lab at Leipzig. R.P. Angier (1903), known for his conflict theory and emotion, Edward Lee Thorndike (1917), known for his theories of learning, Margaret Floy Washburn (1911;1921), the comparative psychologist, and A. Kirschmann (1900) of the University of Toronto, published the results of their experiments on aesthetic preferences.

A.R. Chandler in his text on *Beauty and Human Nature* (1934) complained that "psychologists give no place to experimental aesthetics...if we may judge by Boring's *History of Experimental Psychology*". But this situation may not be quite true today, judging for example by the inclusion of Rudolf Arnheim's homage to "The other Gustav Theodor Fechner", that is Fechner the aesthetic theorizer and experimenter, in Koch and Leary's (1985) recent *A Century of Psychology*.

## CONCLUSION

Omitted here are Fechner's contributions to probability theory, linguistics and economics (e.g. the concept of utility), due to space limitations.

Fechner the scientist, the philosopher, the psychologist and the aestheticist, clearly had much to say to the Americans, who were just starting to seriously study many of these topics. Much has changed in the 100 years since Fechner's death. But many of Fechner's ideas fell on fertile soil and flowered in America. Although Fechner is no longer frequently quoted in today's texts, a historically aware reader can trace many current ideas and controversies back to him. So let us give credit, where credit is due.

These traces are Fechner meant by "life after death". As he himself might have said: "Fechner lives!".

## REFERENCES

- Adler, H. E. (1977). The vicissitudes of Fechnerian psychophysics in America. In R.W. Rieber, K. Salzinger and T. Verhave (Eds.) *The roots of American psychology: Historical influences and implications for the future*. Annals, N.Y. Academic of Sciences, 291, 21-32.
- Adler, H. E. (1980). Vicissitudes of Fechnerian psychophysics in America. In R.W. Rieber, K. Salzinger (Eds.) *Psychology: Theoretical-Historical perspectives*. N.Y.: Academic Press.
- Angier, R.P. (1903) The aesthetics of unequal division. *Psychological Monographs*, 4, No. 1, 541-561.
- Arnheim, R. (1985). The other Gustav Theodor Fechner. In S. Koch and D.E. Leary (Eds. ). *A century of psychology as science*. New York: Appleton-Century-Crofts.
- Chandler, A.R. (1934) *Beauty and human nature: Elements of psychological aesthetics*. New York: Appleton-Century-Crofts.
- Fechner, G.T. (1823) *Premisses ad theoriam organismi generalem*. Lipsiae. In Marshall (1974). G.T. Fechner: Premisses toward a general theory of organism (1823). *Journal of the History of the Behavioral Sciences*, 10, 436-447.
- Fechner, G.T. (1848). *Nanna oder über das Seelenleben der Pflanzen*. Hamburg und Leipzig, L. Voss.

- Fechner, G.T. (1851). *Zend Avesta oder über die Dinge des Himmels und des Jenseits, vom Standpunkt der Naturbetrachtung* (2 vols.) Hamburg und Leipzig: L. Voss.
- Fechner, G.T. (1876). *Vorhule der Aesthetik*. Leipzig: Breitkopf und Hartel.
- Fechner, G.T. (1879). *Die Tagesansicht gegenüber der Nachtansicht*. Leipzig: Breitkopf und Hartel.
- Fechner, G.T. (1904). *The little book of life after death* (Mary C. Wadsworth, trans.) Boston: Little Brown. (Original date of publication 1836).
- Fechner, G.T. (1906). *The little book of life after death* (Hugo Werneke, trans.) LaSalle, IL: Open Court. (Original date of publication 1836)
- Fechner, G.T. (1966). *Elements of psychophysics*. Davis Howes and Edwin G. Boring, eds.; H.S. Adler, trans.) Vol. 1. New York: Holt, Rinehart & Winston. (Original date of publication 1860).
- James, H. (Ed.) (1920). *The letters of William James* (2 vols.) Boston: Atlantic Monthly Press.
- James, W. (1890) *The principles of psychology* (2 vols.) New York: Holt
- James, W. (1909). *A pluralistic Universe*. New York: Longmans Green & Co.
- James, W. (1982). *Introduction to Fechner's "Life after Death"*. In F.H. Burkhardt, F. Bower & I.K. Skrupelis (Eds.) *Essays in religion and morality*. (vol. 11 of *The Works of William James*) Cambridge, MA: Harvard University Press.
- Kalkofen, H. (1987). Die Proportion der Proportion: Fechner zum Goldenen Schnitt. *Geschichte der Psychologie*, 4(2), 30-42.
- Kirschmann, A. (1900). Conceptions and laws of aesthetics. *University of Toronto Studies, Psychological Series*, 6, 255-266.
- Murphy, G. & Ballou R.O. (Eds.) (1960). *William James on Psychical Research*. New York: Viking.
- Perry, R.B. (1935). *The thought and character of William James* (2 vols.) Boston: Little Brown.
- Scott, F.J.D.(1986). *William James: Selected unpublished correspondence 1885-1910*. Columbus, OH: Ohio State University Press.
- Thorndike, E.L. (1917). Individual differences in judgments of the beauty of simple forms. *Psychological Review*, 28, 147-153.
- Washburn, M.F. (1911). A note on the affective value of colors. *American Journal of Psychology*, 22, 578-579.
- Washburn, M.F. (1921). The relationship of pleasantness of color combinations to that of colors seen singly. *American Journal of Psychology*, 32, 145-146.
- Winter, H.J.J. (1948/50) The works of G.T. Fechner on the galvanic circuit. *Annals of science*, 6, 197-205.
- Witmer, L. (1893). Zur experimentellen Aesthetik einfacher räumlicher Formverhältnisse. *Philosophische Studien*, 9, 96-144; 209-263.
- Zeising, A. (1854). *Neue Lehre von den Proportionen des menschlichen Körpers*. Leipzig: R. Weigel.