

MAX WERTHEIMER, *HABILITATION* CANDIDATE AT THE FRANKFURT PSYCHOLOGICAL INSTITUTE

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Max Wertheimer told Edwin B. Newman that it was pure chance that on his way to the Rhineland he prematurely got off the train in Frankfurt, and that he did so because he had an inspiration for an experiment that he wanted to perform. Most historians of psychology accept this anecdote, but fail to mention that thereby Wertheimer also mastered the next and decisive step toward his academic career in accomplishing his *Habilitation*. Exposing the institutional, personal, and intellectual context of Wertheimer's going to Frankfurt and giving a detailed account of the procedure of *Habilitation* will show that Newman's and similar reports of the episode, even if verbatim to Wertheimer's own telling, are nevertheless too improbable to accept at face value.

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In the fall of 1910, Max Wertheimer, doctor of philosophy, went to Frankfurt, joined the Psychological Institute there, and completed in a timely manner, at the beginning of 1912, the procedure of *Habilitation*. What brought him there, thereby making Frankfurt the birthplace of Gestalt psychology? In the historiographical literature, one usually encounters at this point the narrative transmitted by Edwin B. Newman (1908–1990) in his obituary of Max Wertheimer.¹

Wertheimer's Tale According to Newman

Wertheimer

. . . conceived the plan of the experiments on apparent movement. This occurred, Wertheimer once related, while he was on the train en route from Vienna to the Rhineland for a vacation. Interrupting the trip at the next good stopping point, he proceeded at once to put the idea to a test. This town happened to be Frankfurt. He put his bags in a hotel, shopped for a toy stroboscope, and, returning with it to his hotel room, started constructing figures to test the new hypothesis. The rest of the story is more familiar. He found at the University (then the *Akademie für Social-und Handels-*

wissenschaften and a number of related Institutes) Schumann and Köhler. Schumann had just completed a new tachistoscope which he graciously offered to Wertheimer for these experiments. The next months saw the principal experiments completed, first with Köhler and later with Koffka as subjects. In that period, Gestalt psychology was born and its first two converts won. (Newman, 1944, p. 431f)

This is what Newman said to have heard from Wertheimer himself. Mitchell Ash, who had interviewed Newman on this account, added that Wertheimer had his idea for his experiments "when he saw alternating lights on a railway signal" (Ash, 1995, p. 118).

Newman's tale, whether it correctly renders Wertheimer's account or not, sounds very anecdotal. Germany appears as a wonderland of science where, en route to the Rhine, perhaps to the Loreley rock and the Rhine Maidens, one could have a sudden flash of an inspiration, leave the train at wherever the next stop happens to be, storm the local psychological institute, get access to the appropriate instruments, and before long you have your *Habilitation*.

¹ *Viz.*: M. Ash (1995, p. 118, see also note 1 on p. 455); E. G. Boring (1950, p. 595); R. I. Watson (1978, p. 467); R. Smith (1997, p. 685), where the Newman story is called a classical myth about scientific genius; Michael Wertheimer (1980, p. 13), where he says the Newman story has only an apocryphal status; V. Sarris (1987, p. 286); D. B. King & Michael Wertheimer (2005, p. 98).

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Wertheimer's Tale According to Luchins and Luchins

There is, unfortunately, a divergent version of these events that is rarely referred to, probably because it is not quite so fairytale-like.² Abraham S. Luchins (1914–2005) and Edith H. Luchins (1921–2002) offered a dissimilar narration of the trip, reportedly also told by Wertheimer himself on the occasion of a *New School* lecture in 1937.³ Words in parentheses are explanations given by Luchins and Luchins, some of them correcting Wertheimer's Germanisms:

In the study of primitive thinking we saw that we needed to develop a new approach . . . I was wearied with the work, and as usual in such conditions, I went on a trip, to travel to another town and to work in some hotel room. On my trip to Frankfurt, while on the train, I realized certain optical movements made by a game (toy). (WERTHEIMER drew as he said): You turn the (inside screen) and see movie pictures in the slit (in the outer scree(n)) . . . I bought a game (toy) as soon as I got into town. I made a few new strips and then phoned to the Frankfurt laboratory for subjects. They sent me the laboratory assistant, Doctor KÖHLER. Later we got KOFFKA to come too and finally SCHUMANN (the director of the Frankfurt Institute) came. I didn't use him as a subject because he (SCHUMANN) was not optical minded. He told me that KÖHLER had spoken to him about me and that he wanted me to visit the Institute . . . I conducted the experiments at his institute instead of in a hotel room; he had a good mechanic (technician) who could build machines and I devised certain apparatus for the experiments. The experimental work was complete within weeks but the writing of the reports took months." (Luchins & Luchins, 1982, p. 163)

This version is obviously different from Newman's. The travel, the town, the persons, the prop in the shape of a toy are the same, but everything else does not quite match. Two other points are common to these tales: There is no mentioning of *Habilitation* nor of the specifics of the inspiration that made Wertheimer leave his train. For sure, explaining to American students the essence of *Habilitation* and its importance for Wertheimer would have botched the yarn. But why are the specifics of the inspiration unrecorded? Would they also botch a good story?

Köhler's Tale

Wolfgang Köhler, a contemporary witness, gave only a regrettably brief report of

Wertheimer's arrival in Frankfurt in autumn 1910: "The winter term had hardly begun when Max Wertheimer appeared with a primitive stroboscope in his suitcase and with many ideas in his head" (Köhler, 1942, p. 97).

The toy stroboscope is, of course, not a present-day disco stroboscope but a zootrop, also called a miracle drum, which is a rotatable drum with slits and a paper strip on its inner side with pictures representing phases of something moving. At rotation of the drum, the observer sees an apparent motion through the slits.

Wertheimer's Résumé Until Frankfurt

These accounts are inconsistent, if not partially contradictory. No other evidence about Wertheimer's journey to Frankfurt seems to have been passed down. In such cases it might be helpful to carefully examine the environment and detect, in Lewin's terms, the field forces in operation. A closer look at Wertheimer's activities and at the environment in which they took place might help to clarify why he went to Frankfurt in 1910.

He was born in Prague, then part of Austria, on April 15, 1880. After finishing school in 1898, he enrolled at the *Kaiserlich-Königliche Karl-Ferdinand-Universität* (today's *Charles University*) to study law and a little philosophy as well. In the spring term of 1901, he transferred from the Faculty of Law to the Faculty of Liberal Arts. After three more semesters, he left for the Faculty of Liberal Arts at Berlin University in the fall of 1902. There, he went to lectures by the professor of philosophy and Director of the Psychological Institute, Carl Stumpf. He also had contact with Stumpf's assistant at the institute, Friedrich Schumann. In spring of 1904, he transferred to Würzburg University to study with Oswald Külpe, in whose Psychological Laboratory he continued the research he had done earlier together with Julius Klein in the Physiological Institute at Prague (Wertheimer & Klein, 1904). With a disserta-

² *Viz.*: Institut für Psychologie, Frankfurt (1987, p. 8). There is a partial quote given in a German translation.

³ Mary Henle, disciple of Köhler, once observed about Luchins & Luchins' publications of Wertheimer's seminars: "Still less would I like to see in print somebody else's versions of informal, off-the-cuff conversations with students held in the cafeteria or on the way to the subway" (Henle, 1977, p. 196).

tion based on this laboratory work, he obtained the degree of doctor of philosophy (*Dr. phil.*) during the winter term 1904/1905.⁴ In his *curriculum vitae* appended to the doctoral dissertation, Wertheimer listed the university teachers whose courses he had attended and gave special thanks to three of them: Stumpf, Schumann, and Külpe (Wertheimer, 1905, p. 74). The conspicuous name in this triumvirate is that of Schumann. While Stumpf and Külpe were full professors and directors of their Psychological Institute, that is, important because of their elevated position, Schumann was a mere university assistant. His being mentioned with special thanks is indicative of an exceptional relationship: this included, as Wertheimer disclosed later in his *Habilitation* thesis, “introducing me to tachistoscopic experimentation and instructing me in it years ago” (Wertheimer, 2012, p. 14; original: 1912a, p. 17; 1912b, p. 177).

The following years in Wertheimer’s life are scarcely documented. He engaged in studies of various topics at the universities of Berlin, Prague, and Vienna. Because he did not enter a profession outside the university, but remained in academia, even without a salary, office, or stipend, it seems not farfetched that he contemplated *Habilitation*, the one and only way then to a university professorship.

What Does Habilitation Mean?

It seems pertinent to explain what this idiosyncratic feature of central European universities, the *Habilitation*, is all about. In anglophone literature, it is usually interpreted as something like a second doctoral degree with a more ponderous thesis and an oral examination. This explanation, though not outright false, is misleading. It brings up the wrong focus and fails to mention the essential feature, which is: While the doctoral examination is a release (or exit) test, the *Habilitation* is an entrance test. This needs some elucidation.

The crucial question to be answered in the process of *Habilitation* is the following: Will a particular faculty, here understood as the corporation of teachers of a faculty, accept a candidate as its member with equal rights?⁵ *Habilitation* is not about a position or a degree to boast to the outside world; it is about the honor of being incorporated as a member of that faculty, with the right to vote in decisions of that fac-

ulty, with the right as well as the obligation to teach on one’s own account without the approval of a superior. The title of *Privatdozent* is conferred once the candidate is accepted, meaning that he will teach not because he is a civil servant or employee, but will do so as a self-reliant, autonomous, and able (latin: *habilis*) individual.

The requirements for *Habilitation* are, apart from already having attained a doctoral degree, the submission of a substantially new thesis, an oral examination usually in connection with a lecture showing educational qualifications. But even if the candidate excels in these, there is no guarantee that he will be accepted. The faculty may have a multitude of reasons for wanting or not wanting him in their ranks. Do they like his field of research or scholarship, or his scientific method? Do they think that he will enrich the field of study offered to students and even attract more students, or is it probable that he will rather disseminate dubious ideas and misinform the students? Of course, less palatable deliberations may also come into play as: would his rhetorical talent outshine his prospective colleagues, or would he divert a substantial part of the lecture fees to the detriment of his senior colleagues, or would he prove to be grumpy, cranky, or morally suspect?

Because of all these hazards, it is advisable, if you are a candidate, not to bluntly approach a faculty and herald your intention of joining this exclusive fellowship, but to consult unofficially a member of that faculty who esteems your work, who can advise you about the atmosphere and sentiments inside the faculty, who can recommend you to his colleagues, defend you

⁴ The *Rigorosum* (oral examination) took place on December 21, 1904, the printed version of the dissertation, an off-print from the *Archiv für die gesamte Psychologie*, was presented to the faculty on July 24, 1905 (Wertheimer, 1905, 1905/1906).

⁵ The German word *Fakultät* (faculty) is used with two different extensions. In the larger one it comprises teachers and students, in the narrower one it denotes only the corporation of the teachers that have passed the *Habilitation* procedure. In the following “faculty” shall be used in the stricter extension.

against sceptics, and serve as one of the examiners of your thesis.⁶

Having become *Privatdozent*, one may keep that status for life, or one may after years of successful dedication to research and teaching receive the purely honorary title of professor, or else one may one day receive an offer (German: *Ruf*, literary a call) to a salaried university chair. But without the status of *Privatdozent*, it is next to impossible to ever receive such an offer. Whoever considered a university career in central Europe had to attain that status, and, for all those reasons mentioned previously, he had to be very careful in choosing the faculty and his mentor therein. There is an additional factor specifically for Central European universities: Only in exceptional cases may a university or faculty issue a call to a professorship to a *Privatdozent* of their own university or faculty. Such a *Hausberufung* (in-house call) is frowned upon. Only after another university has issued such a call, the *Privatdozent's* own university may do the same. This rule ensured, and still ensures today, the migration of researchers and teachers and the circulation of new ideas.

Wertheimer's habit of doing research at various universities was no doubt directed by his scientific curiosity, but it also might well have served him in sampling the chances of an *Habilitation*, his stepping stone for an academic career.

Back to Wertheimer

Wertheimer not only continued research and studies after obtaining his doctoral degree, he also specialized in the field of psychology. This becomes obvious when we look at the membership list of the *Gesellschaft für experimentelle Psychologie* (*Society for Experimental Psychology*). This society, the present *Deutsche Gesellschaft für Psychologie* (*German Psychological Society*), was founded on the occasion of the 1st *Kongress für experimentelle Psychologie* (*Congress for Experimental Psychology*) at Giessen university in April 1904. On the list of participants one finds a *cand. phil.* U. Wertheimer, from Prague, who is no other than Max Wertheimer whose handwriting had probably been misread and to whom the doctoral degree had not yet been conferred because the printed thesis had not yet been submitted to the Würz-

burg Faculty of Liberal Arts. He is nonetheless accepted as a member of the new *Gesellschaft*.

Wertheimer also attended the society's 2nd congress in Würzburg in 1906 and was listed correctly now as Dr. M. Wertheimer, Berlin. He did not attend the 3rd congress in Frankfurt in 1908, but was, of course, listed as a member of the *Gesellschaft* living in Berlin. He also missed the 4th congress in Innsbruck in 1910 but was once again listed as a member now living in Prague. But he attended the 5th congress in Berlin in 1912, this time listed as living in Frankfurt. What Wertheimer might have learned at the congresses he attended will be discussed in a later section.

Wertheimer continued publishing; first various papers related to the topic of his doctoral dissertation (Wertheimer, 1906a, 1906b; Lipmann & Wertheimer, 1907/1908), then another paper venturing into the new field of ethnography of music (Wertheimer, 1910). He went to Vienna to study with Sigmund Exner, a specialist on the perception of apparent motion and "became thoroughly familiar with Exner's apparatus and procedures for such experimental studies" (King & Wertheimer, 2005, p. 70, 97). None of these studies were used as instrumental in obtaining a *Habilitation*. Wertheimer obviously had not yet detected a faculty and a mentor suitable for this task. Nevertheless, his studies as well as his continued membership in the *Gesellschaft* leave no room for doubt that he intended to continue academic research in a university.

He had turned 30 when his last mentioned paper appeared. If he wanted to stay at a university, it was high time to start the *Habilitation*. Wolfgang Köhler and Kurt Koffka, to cite but two well-known examples, had their *Habilitation* procedure finished when they were 25 or 26. Wertheimer, by contrast, was already 30 and had not yet found a mentor, a place, and a topic for his thesis.

Sigmund Exner could not serve as mentor because he belonged to the wrong faculty, the Faculty of Medicine, whereas Wertheimer had studied and finished his doctorate at the Faculty of Liberal Arts. Had he considered becoming a

⁶ Max Weber, when discussing the professional fate of university teachers in Germany, famously coined the phrase of "academic hazard" (Schmeisser, 1994).

member of a Faculty of Medicine, he would have had to start with a doctorate in medicine. Such considerations are not on record.

Let us take a look at the chairholders of a Faculty of Liberal Arts who came in question as his prospective mentor, especially the three teachers he distinguished in his dissertation CV: Stumpf, Schumann, and Külpe.

Musical University Chairs

Oswald Külpe, Wertheimer's esteemed *Doktorvater*, had received a call to Bonn University and had left Würzburg in the middle of 1909. This move and the vacancy it left in Würzburg generated an avalanche of changes in the location of potential mentors. Karl Marbe, professor at Frankfurt, became Külpe's successor at Würzburg. Marbe went there for the winter term of 1909, but continued to teach in Frankfurt till the end of that term. The ensuing vacancy in Frankfurt was filled by Friedrich Schumann, who had been assistant at Berlin when Wertheimer studied there and had since 1905 been full professor at Zürich University in Switzerland. He should have gone to Frankfurt in the fall 1909 when Marbe left, but could not come there any earlier than Easter 1910.

Karl Marbe had founded the Psychological Institute at the Frankfurt *Akademie für Sozial- und Handelwissenschaften* when he became full professor for philosophy, psychology, and education in 1905.⁷ He had collected enough money from benefactors to turn it into one of the best psychological laboratories in Germany. Funds from the *Foundation Speyer* made possible the establishment of a second chair for philosophy in 1908, which allowed Marbe and his successors to concentrate their energies on research in the psychological laboratory.

Not only professors but assistants were also players of the musical chairs. While Külpe was in Würzburg, his assistant was Kurt Koffka, who had obtained his PhD in Berlin with Stumpf in 1908.⁸ Külpe had promised the assistant position in Bonn to Karl Bühler, who had already gotten his *Habilitation* in Würzburg in 1907 at the age of 28 after obtaining an MD on Freiburg, as well as a PhD in Strassburg. Therefore, Koffka had to stay in Würzburg. But because Marbe brought with him his Frankfurt assistant, Wilhelm Peters, Koffka had to find something else. Schumann considered this and employed him as his first assistant in Frankfurt

in 1910. Soon afterward, the second assistantship was given to Wolfgang Köhler, who had also obtained his PhD in Berlin with Stumpf in 1909.⁹ This was the professional situation when Wertheimer appeared on the scene in Frankfurt at the beginning of winter 1910, a completely new picture that resulted from Külpe's choosing to go to Bonn university.

The Potential for the Position of Mentor

Of the three teachers to whom Wertheimer had expressed special thanks in his CV, Carl Stumpf was not affected by these changes. It is not known whether Wertheimer had approached Stumpf to ask him to act as his mentor in the Berlin Faculty of Liberal Arts, one of the most prestigious in Germany. He might have answered that there were already six *Privatdozenten* for philosophy and one for experimental psychology and education at the Berlin Faculty of Liberal Arts in 1910, and that therefore it would be difficult to persuade the faculty to admit one more.¹⁰

The most reasonable thing to do in Wertheimer's situation would be to turn to his *Doktorvater* for advice. Newman relates Wertheimer as having said that he was on a journey to the Rhineland. "Rhineland" usually means not just the land along the Rhine River, but a specific Prussian province by that name. There was only one university in that province, located in Bonn. So it seems not farfetched to interpret this statement as meaning that Wertheimer was on his way to see Oswald

⁷ On the founding of the *Akademie*; see *Akademie für Sozial- und Handelwissenschaften* (1902); *Hammerstein* (1992); *Heilbrunn* (1915); *Wachsmuth* (1929); and of the Frankfurt psychological institute, see *Gundlach* (2006, 2012); *Marbe*, (1906, 1945).

⁸ The *Rigorosum* took place on the July 23, 1908, the printed version of his dissertation was submitted on October 12, 1908.

⁹ His *Rigorosum* took place on the July 29, 1909, the printed version of his dissertation was submitted on November 24, 1909.

¹⁰ Because there were no chairs for psychology in Germany, the typical *venia legendi*, or teaching entitlement, for someone who had made his *Habilitation* with a thesis in psychology was philosophy. The exceptional *venia* for experimental psychology, given to Hans Rupp, was a dead-end street in a university career since no chairs with this denomination existed. For the names of the other Berlin *Privatdozenten*, vd. *Minerva, Jahrbuch der gelehrten Welt*, 20, Strassburg: Karl J. Trübner (1911, p. 98ff).

Külpe and consult him about the possibility to obtain his *Habilitation* in Bonn or somewhere else.

The train from Vienna to Bonn stops in Frankfurt, the new residence of the third teacher distinguished by Wertheimer in his CV, and now full professor, Friedrich Schumann. Many reasons well known to Wertheimer spoke in favor of choosing him:

- He had been so helpful in Wertheimer's student days that he merited a special thank in the CV;

- Schumann did care about Gestalt problems and was involved in a tripartite controversy about "Gestaltqualitäten." Schumann's (1898) conception of what Ehrenfels had designated by this word was attacked by Alexius von Meinong (1899) and Hans Cornelius (1900). Schumann (1900) had declared these attacks as unfounded:

- He was a renowned specialist in psychological laboratory experimentation and had just become director of the excellent Frankfurt laboratory;

- In 1904, Schumann was elected secretary and member of the directory board of the new *Gesellschaft für experimentelle Psychologie*, and since then had acted as editor of the congress reports;

- In 1904, Schumann started a journal that published his own papers and the papers of his disciples. It was called *Psychologische Studien* and had two sections, the extensive one on optical perception, the other on time perception¹¹; most of the contributions in this journal were published contemporarily in the *Zeitschrift für Psychologie* (*Journal of Psychology*);

- When Hermann Ebbinghaus died in 1909, Schumann took over the influential post of editor of the esteemed *Zeitschrift für Psychologie*.

Obviously, Schumann had turned from a university assistant into an influential, even powerful figure in German psychology since Wertheimer left Berlin, but there was another detail favoring the association with Schumann.

Schumann had developed a special tachistoscope suitable for research on the perception of motion. On January 12, 1899, he demonstrated it to the *Psychologischer Verein zu Berlin* (*Psychological Association at Berlin*) in the premises of the *Psychologisches Universitätsseminar* (Anonymous, 1899, p. 97f). Although Wertheimer was not yet in Berlin at the time, he certainly must have seen the instrument in use

later in the Berlin psychological laboratory. Even if he missed it there, improbable as it was, he would have seen Schumann present it at the first *Kongress für experimentelle Psychologie* in Gießen in 1904 (Schumann, 1904), and he well could have further examined it in the instrument exhibition at that very congress (Sommer, 1904, p. 14f.); or later, at the 2nd *Kongress* in Würzburg in 1906, Wertheimer would have heard Schumann lecture on the psychology of reading (Schumann, 1907a) in which he mentioned that recently he had developed an appliance for his tachistoscope that enabled the presentation of two visual stimuli in rapid succession.¹² The Göttingen instrument maker Spindler & Hoyer published a trade catalogue with an extensive description of that tachistoscope in 1908 (Spindler & Hoyer, 1908, pp. 168–170).

Also at the Würzburg congress, Wertheimer would have in all likelihood heard Schumann commenting on a paper by Paul Ferdinand Linke on new stroboscopic experiments in which Linke (1907) presented his own work in the Psychological Laboratory at Leipzig. Because Schumann's commentary is of particular interest here, it is cited in full length:

Mr speaker is apparently unaware of Exner's numerous treatises on the perception of motion. Neither is the interesting fact that two phases already suffice to give the impression of motion. One can very nicely ascertain this fact in trials with the tachistoscope designed by myself if, for example, one first exposes the vertical beam of a cross for a moment and immediately thereupon the horizontal one; the impression of a turning of the vertical beam will present itself. It has to be particularly taken into account that it is neither the after-image nor the primary memory picture of the vertical beam that really execute the turning in consciousness. This picture rather keeps its vertical position until its disappearance, and nevertheless there is the impression of the turning. This must be a centrally caused content of consciousness that conjoins the perceptual images, whether one names it according to Exner a kinesthetic

¹¹ This journal should not be confounded with Wundt's *Psychologische Studien, Neue Folge der Philosophischen Studien*, which started a year later in 1905.

¹² "Neuerdings habe ich auch eine Vorrichtung an meinem Tachistoskop angebracht, welche ermöglicht, mehr oder weniger kurze Zeit nach der ersten Exposition ein anderes Gesichtsbild zu exponieren. Der Apparat wird von Zulauf & Co., Zürich, Tannenstr., geliefert." (Schumann, 1907a, p. 165). Wertheimer could have read this remark again in Schumann (1909, p. 12). Koffka (1931, p. 1170) distinguished two versions of the Schumann tachistoscope, old and new. The one Schumann mentioned here seems to be already the new version.

sensation or according to Ehrenfels a Gestalt quality.”¹³ (Schumann, 1907b, p. 218, translation by H. G.).

Schumann did not mention the specific experiments on which he based his claim. We are told, however, by an author never mentioned in relation with Wertheimer, Woldemar Lasersohn, that they were done “at the instigation of Schumann in the Berlin Psychological Institute by Mr. Chaym” (Lasersohn, 1912a, p. 27). As far as I know, they were never published.¹⁴

So much for the assets of the three potential mentors, and especially of the actually chosen one. Schumann’s outstanding qualification, however, suffered a liability.

Potential Obstacles

There were plenty of factors that made Schumann a very eligible candidate for the role of mentor, but there loomed one grave disadvantage: he was not a university professor, but was teaching at an *Akademie für Social-und Handelswissenschaften* (*Academy of Social and Commercial Sciences*), which could be mistaken for a commercial academy like the one Wertheimer’s father had founded in Prague, the *Handelsschule Wertheimer*.¹⁵

Two questions come immediately to mind: Could one be habilitated at such a humble institution that did not even have distinct faculties? The most popular German guidebook to universities and other educational institutions of those days, *Minerva: Handbuch der gelehrten Welt*, had a chapter on *Habilitationen* (Minerva, 1911, pp. 12–14). Here one could find out the specific requirements of various universities, but one would look in vain for such a procedure at nonuniversities like the Frankfurt *Akademie*. The *Jahres-Verzeichnis der an den deutschen Universitäten erschienenen Schriften* (*Annual list of writings appeared at German universities*), which lists all German doctoral dissertations or *Habilitation* theses, refused to acknowledge those from Frankfurt.

The second question is: Even if the *Akademie* had the right to confer *Habilitationen*, would that title be accredited the same respectability by the universities? If not, then the whole effort would be in vain. For the relevant goal of *Habilitation* for somebody striving for a university career was not simply to become a member of the Faculty (or the *Akademie*, in Wertheimer’s case) that passed his *Habilitation* but rather to

become a member of a faculty of any university that would offer him a chair. Being offered a chair where one was habilitated would be against the established rules. Transferring to a different university was connected with the procedure of *Umhabilitation*. This is the simplified procedure by which professors or *Privatdozenten* acquire the right to teach (*venia legendi*) at another university. Candidates would apply to the dean of the new faculty and usually present their *Curriculum vitae*, the *Habilitation* document, the corresponding thesis, and additional publications. It is normally a mere formality, because before a chair is offered to anyone, the faculty would already have collected such information. But faculties might shy away from offering a call if the candidate’s *Habilitation* had taken place at an institution deemed unworthy.

¹³ The original text: “Dem Herrn Vortragenden sind offenbar die zahlreichen Abhandlungen Exners über die Wahrnehmung der Bewegung unbekannt geblieben. Auch die interessante Tatsache, daß schon zwei Phasen genügen, um den Bewegungseindruck zu geben, ist nicht neu. Sehr schön kann man sie konstatieren bei Versuchen mit dem von mir konstruierten Taschistoskop (sic!), wenn man z. B. zuerst den senkrechten Balken eines Kreuzes für einen Moment exponiert und unmittelbar darauf den horizontalen; dann tritt schon der Eindruck einer Drehung des vertikalen Balkens auf. Dabei ist besonders zu beachten, daß nicht etwa das Nachbild oder primäre Gedächtnisbild des vertikalen Balkens im Bewußtsein die Drehung wirklich ausführt. Dieses Bild behält vielmehr bis zum Verschwinden seine vertikale Lage bei und trotzdem ist der Eindruck der Drehung da. Dieser muß ein zu den Wahrnehmungsbildern hinzukommender zentral erzeugter Bewußtseinsinhalt sein, mag man ihn nun mit Exner als Bewegungsempfindung oder mit Ehrenfels als Gestaltqualität bezeichnen.” (Schumann, 1907b, p. 218). See Exner (1888–1889); also Gundlach & Stock (2012, p. 214).

¹⁴ This is very likely Georg Chaym. He was immatriculated at Berlin University in April 1898 but thrown out in January 1901 for lack of studiousness. In May 1903, he was again immatriculated until cancelation in May 1907. In the winter term 1904/1905 and in the summer term 1905 he participated as a paying member in exercises in Stumpf’s Psychological Seminary, conducted by Schumann (Communication by Universitätsarchiv der Humboldt-Universität zu Berlin of 13th December 2012). At this time, Wertheimer was already in Würzburg. This makes it unlikely that Wertheimer was present when Chaym was asked to do the experiments, though it leaves open the possibility that Wertheimer knew about them before hearing Schumann mention them at the Würzburg congress.

¹⁵ King & Wertheimer (2005, p. 20) translate this as “business school” Ash (1995, p. 104), however, as “commercial academy.”

The first question could be answered quickly. Already in 1903, the departing rector of the Frankfurt *Akademie*, the Romanist Heinrich Morf (1854–1921), stated that “The principles of a *Habilitation* statute have found the approval of the Ministry of Education . . .” (Morf, 1903, p. 12). The statute itself had been approved by the Ministry on May 26, 1903 (Wachsmuth, 1929, p. 51). The first Frankfurt *Habilitation* took place in 1905.¹⁶ Marbe’s first assistant, Friedrich Ernst Otto Schultze (1872–1950), had undergone the procedure already in 1908. He then left Frankfurt for a professorship in Buenos Aires in 1909.

The second question did not have a ready answer. But because both Koffka and Köhler intended to go through the *Habilitation* procedure in Frankfurt, that should encourage Wertheimer in case he had harbored any reservations. Admittedly, Koffka left Frankfurt for a real University, Gießen, in 1911, and received his *Habilitation* there in the same year, but Köhler stayed on and received his *Habilitation* in Frankfurt in 1911, becoming *Privatdozent* for psychology, systematic philosophy, and history of philosophy.

Schumann’s Tale

Unfortunately, no correspondence, diary entrance, or witness report concerning Schumann has been passed down. There exists, nevertheless, a footnote in print by Schumann himself on Wertheimer’s arrival in Frankfurt. It is rarely noticed, but it does clarify the situation. This footnote appeared in the following context:

In the second issue of volume 61 of the *Zeitschrift für Psychologie*, published early in 1912, Schumann included the first of a series of articles under the heading *Untersuchungen über die Wahrnehmung der Bewegung durch das Auge*. Herausgegeben von F. Schumann (*Investigations on the perception of motion by the eye*. Edited by F. Schumann.) It was intended to present research done under Schumann’s supervision, principally doctoral dissertations. The first instalment, under the Roman numeral I, was the journal version of the doctoral thesis by the afore mentioned Woldemar Lasersohn entitled *Kritik der hauptsächlichsten Theorien über den unmittelbaren Bewegungseindruck* (*Critique of the major theories on the immediate impression of motion*; Lasersohn, 1912b) also

published as a separate thesis under a slightly different title as *The immediate impression of motion* (Lasersohn, 1912a).

To his series title Schumann has added a long footnote dealing with Wertheimer’s paper, not yet published but now in preparation for print:

Under the above title I collect various papers of my students, to each of which I have presented the basic idea, and supplied additions. To be publishing in the next issue is the following paper by Mr. Privatdozent Dr. WERTHEIMER: “Exp. Studies of the Perception of Motion.” These studies were also conducted in the Frankfurt Institute, but are a thoroughly independent investigation on the same area. When Dr. WERTHEIMER entered my Institute I had already prompted my students to tackle the complete problem from different sides, and I had also created an experimental setup, with which I wanted one of my students to examine the sensory phenomenon which plays a fundamental role in stroboscopic perception and which I had already pointed out during the Würzburg congress in the discussion of a lecture by P. LINKE. Since he (Dr. WERTHEIMER) came with the intention of examining the problem of motion, I left the experimental setup to him for his researches; his results confirm the central importance of the specific basic phenomenon. (Schumann, 1912a, p. 81, translation by H. G.)¹⁷

A Line of Disciples

Indeed, there seems to be a line of Schumann’s disciples tackling the problem of the apparent motion phenomenon which Schumann had mentioned at the 1906 Würzburg congress. It probably started in Berlin with Georg Chaym,

¹⁶ It was the economic geographer Alois Kraus; the economic geographer Alexander Franz was the next one (Wachsmuth, 1929, p. 51).

¹⁷ Original: “Unter obigem Titel fasse ich einige Arbeiten von Schülern zusammen, deren Grundgedanken ich angeben und die ich mit Zusätzen versehen habe. Die im nächsten Hefte folgende Arbeit von Herrn Privatdozenten Dr. WERTHEIMER “Exp. Studien über das Sehen von Bewegung,” ebenfalls aus dem Frankfurter Institute, stellt jedoch eine durchaus selbständige Untersuchung über dasselbe Gebiet dar. Ich hatte bereits das Gesamtproblem von verschiedenen Seiten in Angriff nehmen lassen und mir auch schon eine Versuchsanordnung hergestellt, mit der ich durch einen meiner Schüler das sinnliche Phänomen untersuchen lassen wollte, das beim stroboskopischen Sehen eine fundamentale Rolle spielt und auf das ich bereits beim Würzburger Kongresse in der Diskussion zu einem Vortrage von P. LINKE hingewiesen hatte, als Herr Dr. WERTHEIMER in mein Institut eintrat. Da er mit der Absicht kam, das Problem der Bewegung zu untersuchen, überließ ich ihm die Versuchsanordnung zu seinen Forschungen; in seinen Ergebnissen bestätigt sich die zentrale Wichtigkeit des spezifischen Grundphänomens.”

whose results seem not to have been published before Schumann referred to them at that congress.

The line continued with Carl Friedrich Wiegand. Researching for his doctoral thesis a topic given by Schumann, then in Zürich, namely the “significance to the Gestalt quality for word recognition,” he used the improved version of the Schumann tachistoscope that allowed two different expositions in rapid succession. A detailed description of the apparatus is given (Wiegand, 1908a, 66f., 1908b, 224f).^{18,19} Schumann had already announced the construction of the new version of his tachistoscope at the 1906 Würzburg Congress (Schumann, 1907a, 165, note 1) where Wertheimer was present.

The next in line was Heinrich Hanselmann, another Zürich disciple of Schumann’s. Collecting a long list of publications on the perception of motion for his doctoral dissertation, he reviewed and criticized the various theories offered to explain the phenomena. Of course, he cited Schumann’s words spoken at the 1906 Würzburg congress on the phenomenon of apparent motion produced with his tachistoscope (Hanselmann, 1911, p. 48f.).

The next in line before Wertheimer was Woldemar Lasersohn, or Vladimir Lasersohn in the Russian version of his first name. Born in Moscow in 1889, he went to Jena to study psychology and philosophy. In autumn of 1908, he went to Zürich where Schumann gave him the topic for his doctoral dissertation. When Schumann left Zürich for Frankfurt, Lasersohn went with him for the summer semester 1910 to finish his laboratory work there. As he acknowledged:

The present paper was prompted by Prof. SCHUMANN; it began in the Psychological Laboratory of the University of Zurich and it was completed in the Psychological Institute of the Academy in Frankfurt on the Main. During the whole process I had always had the untiring support of Prof. F. SCHUMANN for which I wish to express once more my warmest and most special thanks to him. (Lasersohn, 1912b, p. 47. Translation H. G.)²⁰

Apparently, Schumann had taken his tachistoscopes with him to Frankfurt. Returning to Zürich, Lasersohn finished his thesis, which was subsequently approved, and at the end of 1910 he left Zürich University. He received his doctor diploma on April 30, 1912, after his thesis (Lasersohn, 1912b) was published.²¹ On

May 8, 1913, he was enrolled at the university of Berne as a medical student.²² Nothing more is known of him.

On pages 25 to 27 of his thesis, Lasersohn documented his laboratory experiments with Schumann’s tachistoscope to produce a sequence of a vertical and an horizontal beam that result in the impression of motion. He gave a detailed description of the experimental setup and procedure which are very similar to the one Chaym had used in Berlin and to the one later used by Wertheimer. Lasersohn’s experiments, however, did not constitute a systematic investigation, they only served the purpose of illustration since his main topic was the critique of existing theories on the perception of motion.

It was after Lasersohn had returned to Zürich that Wertheimer arrived in Frankfurt where he became Schumann’s next disciple engaged in apparent motion research. Schumann, by starting his publication series *Investigations on the perception of motion by the eye*, undoubtedly had a sequence of studies in mind of which Lasersohn’s was the first, clearing the ground by summarizing and criticizing the actual state of research. The next study should, as Schumann told us in his footnote, undertake the systematic experimental investigation for which Schumann had already prepared the apparatus.

This next study was none other than the journal version of Wertheimer’s *Habilitation* thesis (Wertheimer, 1912b). Schumann, the editor of the *Zeitschrift*, placed it in the double issue 3/4 of volume 61, while Lasersohn’s paper had ap-

¹⁸ . . . “die Bedeutung der Gestaltqualität für die Erkennung von Wörtern”. . . . (Wiegand, 1908a, 1908b).

¹⁹ Wiegand found, interestingly, that it is not the Gestalt (in this particular case the whole word), but elements (in this case individual letter) that were significant. For a critique of Wiegand’s use of the word ‘Gestaltqualität’, see Gelb (1910, p. 60; 1911, p. 58).

²⁰ “Die vorliegende Arbeit entstand auf Anregung des Herrn Prof. SCHUMANN; sie wurde im Psychologischen Laboratorium der Universität Zürich begonnen und im Psychologischen Institut der Akademie in Frankfurt a. Main zu Ende geführt. Während der Ausführung der Arbeit wurde ich von Herrn Prof. F. SCHUMANN stets in unermüdlicher Weise unterstützt, wofür ich ihm nochmals ganz besonders meinen verbindlichsten Dank ausspreche.” (Lasersohn, 1912b, p. 47).

²¹ Information of University Archive, Zürich, 13. 12. 2012.

²² Datenbank der Studierenden, 1834–1914, University Archive, Berne.

peared in the preceding second issue.²³ Another detail seems revealing. Papers in the *Zeitschrift* usually carry at their ending the date on which they were submitted. Wertheimer's paper, for example, was submitted on January 29th, 1912. Tellingly, Lasersohn's paper has no such date, although it is very likely that he had already finished it and submitted to the Zürich Faculty of Liberal Arts at the end of 1910 before leaving the university. He could have sent it then to Schumann immediately to have it published shortly after in order to receive his doctor diploma. Schumann, however, had let him wait at least one year, a circumstance he obfuscated by not giving the submission date.²⁴ In contrast, Wertheimer had to wait two months at best. In this way, Schumann managed to publish the two papers in two consecutive issues and thereby bring his new publication series to prominence. Incidentally, it also prevented Wertheimer from citing Lasersohn.

Wertheimer in his thesis confirmed what Schumann had said in his note to Lasersohn's paper: "Professor Schumann was kind enough to make available his well-known tachistoscope, with a special addition that he devised for the purpose of studying the effects of two successive exposures, thus enabling me to conduct my experiments under technically more exact and precisely measurable conditions." (Wertheimer, 2012, p. 13; original: 1912a, p. 15; 1912b, p. 175).

Wertheimer moreover acknowledged his indebtedness to Schumann by repeatedly referring to Schumann's 1906 Würzburg congress observations (Schumann, 1907a; 1907b; Wertheimer, 1912a, pp. 3, 5, 15, 86; Wertheimer, 1912b; Wertheimer, 2012, pp. 3, 4, 13, 74) and by thanking him for "introducing me to tachistoscopic experimentation and instructing me in it years ago" (Wertheimer, 1912a, p. 17; Wertheimer, 1912b, p. 177; Wertheimer, 2012, p. 14f). This introduction obviously happened when Wertheimer was in Berlin.

It is therefore no surprise that at least some of Wertheimer's contemporaries considered him a disciple of Schumann. The physiologist Franz Bruno Hofmann speaks of "Schumann's disciples Lasersohn and Wertheimer" (Hofmann, 1916, p. 328). Forrest Lee Dimmick stated: "Wertheimer followed closely the cue given by Schumann" (1920, p. 318). Paul C. Squires remarked: "F. Schumann suggested an experi-

ment by means of which to demonstrate the simplicity of the movement experience (Ber. u. d. II. Kong. f. exp. Psychol., 1907, 218), and Wertheimer followed up this suggestion. . . . There was reported the isolation of a bare movement-experience, called by Wertheimer the phi-phenomenon" (Squires, 1926, p. 574).²⁵

Schumann, however, stressed on at least of two occasions that Wertheimer's work was a "thoroughly independent investigation," first in his footnote to Lasersohn's paper (Schumann, 1912a, p. 81), and again on the occasion of the 1912 Berlin congress of the *Gesellschaft* (Schumann, 1912b, p. 181). And it is beyond doubt that he had also emphasized this in the presence of his colleagues in Frankfurt when they were

²³ The Eds. of Wertheimer (2012, p. 1) maintain that Wertheimer's thesis appeared in the first issue. This is not the case. Vol. 61 of the *Zeitschrift* is composed of issues 1 (pp. 1-80), 2 (pp. 81-160) which starts with Lasersohn's paper, 3/4 (pp. 161-320) which starts with Wertheimer's paper, and 5/6 (pp. 321-548), these four publications constituting the nominal six issues of a typical *Zeitschrift* volume.

²⁴ If this seems farfetched, the publication speed in those days may be assessed by looking at Vol. 60. It comprises 10 major papers (without the reviews), all of them with submission dates, two submitted in July 1911, one in August, four in September, two in October (including Wertheimer, 1912c), and one in November. The issue 1/2 (pp. 1-160) appeared already in 1911, the others in the first quarter of 1912.

²⁵ As an aside I would like to point out that I consider the widespread explaining of the "φ" in "phi-phenomenon" as derived from the first Greek letter "φ" of "phenomenon" as mistaken. A phi-phenomenon is what Schumann called "a centrally caused content of consciousness," and what Wertheimer called the correlate of "particular central processes, physiological 'traverse functions'" (2012, p. 75; 1912a, p. 86; 1912b, p. 246), or the result of a "kind of physiological short circuit" (2012, p. 76; 1912a, p. 88; 1912b, p. 248) that "corresponds phenomenologically with the φ phenomenon" (2012, p. 78f.; 1912a, p. 91; 1912b, p. 251), or in the original: ". . . eine Art physiologischen Kurzschlusses, dem psychisch phänomenal das φ-Phänomen entspräche . . ." As Wertheimer's § 21 makes plain, a phi-phenomenon is a physiologically induced or caused or occasioned phenomenon, not a phenomenon-phenomenon, which would be a ludicrous composite anyway. See also Koffka's remarks on what Wertheimer explained him ". . . about the function of a physiological theory in psychology, the relation between consciousness and the underlying physiological processes . . .". This impressed Koffka ". . . more than anything else" (Koffka, 1935, p. 53). Wertheimer gave these explanations only after the experimental sessions in which Koffka had acted as naive subject. The phi-phenomenon is very likely a physiologically induced phenomenon.

discussing the merits of the thesis. For if a *Habilitation* thesis had to be anything at all, it had to be a thoroughly independent study.

In contrast to his handling of the paper by Lasersohn, Schumann refrained from placing his series headline, *Investigations on the perception of motion by the eye*, on top of Wertheimer's paper, although in his footnote to Lasersohn's paper he had made clear that he planned it to be the next one in that series.²⁶ Obviously, such a headline would have undermined the claim of its independence and therefore had to be absent.

Conclusion

This article presents new facts so far not taken into consideration by historians of psychology. First, it establishes that there is a line of disciples of Schumann's whom he prompted to do research on apparent motion, some with the help of his tachistoscope. Second, it shows that Wertheimer's research is not a solitary endeavor, but is a part of that line. Third, it points to the fact that there is a contemporary declaration by Schumann, attesting this.

It is certainly not a new fact that Wertheimer's, 1912 paper is also a *Habilitation* thesis. But this factor has until now not been perceived in its appropriate significance. Nor has it been observed that it was high time for Wertheimer to find a place and a mentor for this procedure, as younger colleagues were getting ahead of him.

I have presented Wertheimer's academic environment because I believe this helps to explain his going to and staying in Frankfurt. From his persistent activity in scientific research together with his advanced age I deduce as Wertheimer's main motive or goal the starting of a *Habilitation* project somewhere. This goal together with his environment would determine his actions.

What elements of the various tales cited can we confirm as factual? It is certain that Wertheimer came to Frankfurt in autumn 1910. He enrolled for the winter term 1910/1911 as a *Hospitant* (auditor or extension-student) in two courses, namely Schumann's *Scientific Work for Advances Students*, and Koffka's *Introduction to Experimental Psychology*.²⁷ It might sound improbable to imagine Wertheimer in need of such an introduction, but then there

were not many courses in Frankfurt to choose from.

It is also beyond doubt that in Frankfurt Wertheimer met Schumann, Köhler, and Koffka. It seems also correct that he brought a toy stroboscope with him. The contemporary witness Köhler attested this. Köhler's remark, however, that Wertheimer carried it in his suitcase makes it look doubtful whether he actually bought it in Frankfurt. In that case he would have more likely transported it in its original package. But this is a minor point.

It is unfortunately unrecorded what insight he had acquired with the help of this toy. In the versions told by Newman and by Luchins and Luchins, this item seems to have the function of overshadowing what actually happened:

Whatever ideas for a research project Wertheimer had conceived when arriving in Frankfurt, he consented to Schumann's offer of putting to use the apparatus already carefully set up, and he implemented the research task Schumann had in mind. Newman's assertion that Wertheimer had conceived a plan of experiments on apparent motion while traveling which he then implemented in Frankfurt clashes with what Schumann had to say. That Wertheimer's plans and Schumann's plan were identical would seem so coincidental as to be unbelievable. Taking over the role to continue the project that Schumann had planned can only mean that Wertheimer had a purpose that was more important than exploring his own research hypotheses, whatever they might have been. This purpose could only have been to start his *Habilitation* project, and that as quickly as practicable. He was getting old.

If that was indeed his main goal, then Newman's assertion that he was en route to Rhineland is plausible, when that is understood as going to the Rhenish University Bonn and

²⁶ After Wertheimer's paper, the series came to a standstill. It took quite some time to revive. The following studies are the sequels in this order: Fuchs (1928); Engel (1928); Steinig (1929); Blug (1932).

²⁷ Information of *Institut für Stadtgeschichte Frankfurt am Main*, 12. 12. 2012. See also *Akademie für Sozial- und Handelswissenschaft zu Frankfurt am Main. Die Vorlesungen des Wintersemesters, 1910/11*. Frankfurt am Main: C. Stadelmann. pp. 24. Schumann: *Wissenschaftliche Arbeiten für Fortgeschrittene*; Koffka: *Einführungskurs in die experimentelle Psychologie*.

asking his *Doktorvater* Külpe for advice and help.

Of course, Wertheimer knew that on the way there he would pass through first Würzburg and then Frankfurt. The first town was where he had finished his doctorate with Külpe whose chair had recently been taken over by Marbe, and the second town was where his helpful friend from Berlin days who had introduced him to tachistoscopy had acquired an attractive psychological laboratory in the *Akademie*.

We have no evidence whatever that Wertheimer considered a stopover at Würzburg for a talk with Marbe who had also researched on stroboscopic perception and effects. So until further notice this option should not be considered here.

Approaching Frankfurt alone would certainly produce associations of Schumann, the tachistoscope specialist, who had already talked at congresses on effects produced with this instrument and who had distributed dissertation topics on stroboscopic perception. Frankfurt was not just Newman's "next good stopping point."

How about the possibility that Wertheimer had made arrangements for all this with Schumann by mail in due time? The way Schumann and Köhler, our only contemporary witnesses so far, expressed themselves about Wertheimer arriving in Frankfurt place him as an unexpected visitor which is compatible with the Külpe and Bonn hypothesis.

It is likely that it was only in Frankfurt that Wertheimer realized that a *Habilitation* there was not only possible, but that it also might be not too different from an *Habilitation* at a real university. Others had done it before in Frankfurt, and Köhler and Koffka did not seem to mind to do it there.

So Wertheimer probably understood swiftly that Frankfurt was the place to stay with an unproblematic pathway open to *Habilitation* in the company of a dependable mentor and other acquaintances from his Berlin days.²⁸

The full story of Wertheimer's journey and stop in Frankfurt including the intricacies of *Habilitation* and acceptance of an unexpected offer to a research somewhat predesigned by his mentor but nonetheless executed with his personal ingenuity would have been too complicated and perplexing for his American students. It seems therefore plausible that Wertheimer

told them abridged versions of the events which they then handed down to us.

It is not the subject of this paper to analyze which parts of Wertheimer's seminal paper of 1912 follow the direction indicated by Schumann and which parts are the contributions of Wertheimer's genius. But it might be allowed to cite Koffka: "Wertheimer (1912) utilized the results of his classical study to formulate briefly a number of new principles constitutive for every kind of psychological theory." (Koffka, 1935, p. 280). Most of these new principles he presumably had in mind already before arriving in Frankfurt, and there he was offered the opportunity to find empirical evidence supporting these principles. Koffka and Köhler attest in many places that in Frankfurt he acquainted them with many new principles. At the sixth congress of the *Gesellschaft für experimentelle Psychologie* in Göttingen in April 1914 through a comment by Adhémar Gelb the community of experimental psychologists was informed that Wertheimer harbored many more ideas on *Gestalt principles* than mentioned in his *Habilitation* thesis. Gelb made reference to "Gestalt laws, discovered by Wertheimer, but not yet published" (Gelb, 1914, p. 42).²⁹ Gelb is a reliable witness as he worked as Schumann's assistant at the Frankfurt Psychological Institute since June 1912, succeeding Koffka who had left for Gießen university.

Wertheimer might have had good reasons not to develop all his radically new ideas in his thesis. For if a *Habilitation* thesis should be "thoroughly independent" and present new insights, it had better not be too revolutionary so as not to antagonize the body of professors upon whose judgment the felicitous ending of the *Habilitation* process depends.

²⁸ One can read in various publications that Wertheimer became acquainted with Köhler and Koffka only in Frankfurt. Koffka, however, testified: "... we three knew each other slightly before we were thrown into the closest contact ... " in Frankfurt, of course (Koffka in Harrower, 1983, p. 254f.).

²⁹ Gelb had graduated with Stumpf in Berlin in 1910 (Gelb, 1910, 1910/1911). The oral examination took place on July 14, 1910, the printed version of his dissertation was presented on the October 14, 1910.

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