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## Field, Ears, and Laboratory: Training Language Scholars, 1920–1940\*

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### Introduction

Language studies (or *Sprachwissenschaft* in German), as the previous chapter in this volume shows, was for the most part represented by comparative philology (or *grammaire comparée* in France) of Indo-European languages in the nineteenth century. Traditionally, philology had placed great emphasis on the grammar of an individual language, especially Greek or Latin, as it was an indispensable tool for understanding the language and the texts written in it. Pioneers like William Jones (1746–1794), Franz Bopp (1791–1867), and Jacob Grimm (1785–1863) began to study multiple languages of the Indo-European family. This family includes modern European languages—such as English and German (Germanic), French and Italian (Romance), and Russian and Polish (Slavic)—and their medieval predecessors such as Gothic. It also includes classical languages—Latin and Greek—as well as non-Western languages like Persian and Sanskrit, the subjects of Oriental philology. Philologists compared cognate verbs and nouns in related languages (hence ‘comparative’ philology) and analyzed the differences in their inflectional patterns. Thus they were able to show the transformation of a particular language from its ancient (or medieval) to its modern forms or, conversely, to trace it back to its origin. They even worked to reconstruct the ancestral language of all related modern ones by reversing the patterns induced from their morphological

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and phonological evolutions. These were vertical tracings. Horizontally, scholars classified individual languages into various branches of a family tree. Comparative philology is thus historical, comparative, or often both. Scholars were amazed by its power and value and applied this historico-comparative approach to studying languages of non-Indo-European families—the Semitic, Turkic, Finno-Ugric, and Sino-Tibetan, for example.

Until the late nineteenth century, language scholars were students of letters. They received a solid education in classical philology at university (after serious classical education in secondary school). They also studied the philology of several modern European languages, Sanskrit, Persian, and perhaps several other languages of the Indo-European family. Some even reached into non-Indo-European languages. Their study, reflecting the traditional nature of philological investigation, was based on historical documents. Even phonological investigations were at first based on texts.

The Young Grammarian movement of the 1870 and '80s, which John Joseph refers to in his chapter, gave an important momentum to two new related developments. First, the center of the movement was the sound laws, the pattern of phonological transformations. The attention to sound led to the first development, the study of spoken languages, also known as 'living languages'. These were the modern European languages, including their 'standard languages', dialects, and local accents. The other development went a step further: the study of languages that were never written, such as native American (then known as American Indian) and African languages. Both subjects involved grasping sounds, which could not be done by studying letters in the library alone. Language scholars therefore turned to other methods for their work on sounds and for training junior scholars. In this context, phonetics emerged as a new discipline and linguistics gradually gained its disciplinary identity.

This chapter surveys the training of language scholars in the United States, Britain, France, and Germany in the 1920s and '30s, focusing on certain figures, including men and women, in selected programs of language studies. It follows the paths of their study to illustrate the curricula and the 'instruments' of training, including fieldwork, ears, and laboratory. The survey concludes with a consideration of James Turner's question in the first chapter of this volume: Does training generate a discipline, or does a discipline generate a specific type of training? The discussion also addresses the institutional structure for language studies and the employment conditions for male and female language scholars in the two decades under study.

### **Fieldwork and American Linguistics**

The great majority of American language scholars in the early twentieth century received philological training. Carl Darling Buck (1866–1955), a

leader of Indo-European philology in the United States and the president of the Linguistic Society of America (1927), for example, studied Sanskrit philology for his BA and PhD at Yale and then, like many American scholars of his time, pursued advanced work at Leipzig, the mecca of Indo-European comparative philology.<sup>1</sup> Leonard Bloomfield (1887–1949), a superstar in American linguistics in the first half of the twentieth century, completed his BA at Harvard and his PhD in Germanic philology at Chicago and thereafter received further training at Leipzig and Göttingen.<sup>2</sup> Buck, Bloomfield, and many of their colleagues took courses and especially seminars at American universities that were deliberately modeled on German academic training.<sup>3</sup> Training in specialized original research and the application of that training to the doctoral dissertation were required for the Doctor of Philosophy degree, which had become the expected credential for an academic appointment in prestigious American institutions.<sup>4</sup>

A new trend started with the emergence of anthropology around the turn of the twentieth century. The birth of this field in the United States owed much to Franz Boas (1858–1942), who started at Clark University the first department of anthropology in the country, and then taught at Columbia, where he trained a generation of prominent anthropologists in North America. Boas saw language as an integral part of anthropological work and trained his students accordingly. His first doctoral student at Columbia, Alfred Kroeber (1876–1960), investigated American Indian cultures and languages. Edward Sapir (1894–1939), another superstar of American linguistics in the second half of the twentieth century, did the same with Boas, though he differed somewhat from Kroeber in that he had had substantial undergraduate education in German and Sanskrit philology before he turned to anthropology.<sup>5</sup> Both Kroeber and Sapir did fieldwork for their dissertations, signaling a new trend for graduate training, at least in anthropology.

Indeed, fieldwork became a regular component of anthropological work for Boas' students, though the advanced, systematic training it demanded

<sup>1</sup> Buck was the third president of the LSA. The first and second presidents, Hermann Collitz (1855–1935) and Maurice Bloomfield (1855–1928), had similar resumes. Collitz was born in Germany and immigrated to the United States, while Bloomfield was born in Austria and grew up in the United States. Both studied the philology of Sanskrit and other Indo-European languages, and both settled into teaching at Johns Hopkins University.

<sup>2</sup> Bloomfield wrote his dissertation on 'a semasiologic differentiation in Germanic secondary ablaut' at the University of Chicago in 1909. Bernard Bloch, 'Leonard Bloomfield', *Language*, 25/2 (1949), 88.

<sup>3</sup> Roger L. Geiger, *To Advance Knowledge: The Growth of American Research Universities, 1900–1940* (New York, 1986), 20.

<sup>4</sup> Geiger, *To Advance Knowledge*, 30.

<sup>5</sup> Regna Darnell, *Edward Sapir: Linguist, Anthropologist, Humanist* (Berkeley, 1990), 7.

was not necessarily provided. Teaching his students Eskimo vocabulary and myths, Boas worked with them to induce the grammars of American Indian languages from transcriptions. He invited Eskimo speakers to his class, which took place either at his home or at the American Museum of Natural History, the latter of which he was affiliated with.<sup>6</sup> Little is known about the way Boas trained his students for fieldwork. If there was any training, it was informal. On the other hand, it is known that Boas helped students apply for and receive funding for their dissertation fieldwork.<sup>7</sup> Thus, at least they did not work in the field at their own expense.

Fang-Kuei Li (1902–1987) was one of the very few scholars who studied with both Sapir and Bloomfield. In 1926, Li started his graduate study at Chicago in the Department of Comparative Philology, General Linguistics, and Indo-Iranian Philology, with a small but stellar faculty.<sup>8</sup> At the time, Buck was the chair of the department. Sapir arrived at Chicago in 1925, with his major appointment in the Department of Sociology and Anthropology. Prior to his appointment, he had been the head of the Anthropology Section at the Canadian Geographical Survey. Bloomfield came to Chicago from Ohio State University in 1927 to replace his doctoral supervisor, Francis Wood (1859–1948), a professor of German philology who had just retired. Thanks to the interdisciplinary culture at Chicago, Buck, Sapir, and Bloomfield taught courses that were co-listed in Li's department, despite their major appointments in three different departments.<sup>9</sup>

What distinguishes American graduate school then and now from its European counterparts is the substantial and structured doctoral coursework that the student is expected to complete. A native Chinese, Li received undergraduate education at Michigan, where he studied Latin, Old English, Middle English, Gothic, Middle-High German, and modern German.<sup>10</sup> Li remembered taking courses with Sapir in his first year (1925–26) at Chicago ('General Introduction to Linguistics' and 'Types of Linguistic Structure') and with Bloomfield in his second year ('Gothic' and 'Old High German'). He probably worked with Buck both years,

<sup>6</sup> Theodora Kroeber, *Alfred Kroeber: a Personal Configuration* (Berkeley, 1970), 46–8.

<sup>7</sup> Edward Sapir, 'To W. H. Holmes, Chief of Bureau of Ethnology', 5 July 1906, Bureau of American Ethnology Records, Letters Received 1888–1906, Box 113, National Anthropological Archives, Smithsonian Institution, Suitland, MD.

<sup>8</sup> From 1893 to 1938, this department turned out only sixteen PhDs, and only five in the decade between 1921 and 1930.

<sup>9</sup> Two more scholars taught courses listed in this department: the Sanskrit scholar Walter Eugene Clark (1881–1960) and a scholar of Romance languages, Clarence L. Parmenter (1890–1965), who taught phonetics.

<sup>10</sup> Fang-Kuei Li, 'Fang-Kuei Li, Linguistics East and West: American Indian, Sino-Tibetan, and Thai: Oral History Transcript' (1988), 7–8, Regional Oral History Office, The Bancroft Library, China Scholars Series.

when Buck taught 'Introduction to the Historical Study of Language', 'Outlines of the Comparative Grammar of Greek and Latin', several historical Indo-European languages (including Greek, Latin, Sanskrit, Avestan, Old Persian, and Lithuanian, among others), and the department seminar.<sup>11</sup> Though not all these courses were seminars in name, they fostered close interaction between the professor and his students. Bloomfield personally explained difficult works to Li, the only student in class, and Sapir regularly assigned to Li readings that he had just come across and had not yet included on the syllabus.<sup>12</sup> Li developed from one of Sapir's classes his MA thesis on the verb stems of Sarcee, an American Indian language of the Athabaskan family. As Sapir had not supervised any students at the Canadian Geographical Survey, which was not an educational institution, Li became Sapir's first MA and doctoral student.

Li learned fieldwork on site instead of in school. Sapir took Li to Northern California in the summer of 1927, where they worked together for two weeks interviewing speakers of American Indian languages in the Hoopa Valley. Thereafter, Sapir and Li did similar interviews with a different language group nearby.<sup>13</sup> Then Sapir left Li alone. Li continued on his own, applying his newly acquired skills in Mattole by interviewing the last speaker of the language. When he thought he had reached the point of diminishing returns, he stopped and moved on to another tribe, again on his own. Li's transcription and analysis of the Mattole language was completed late in 1927. When Sapir read it, he suggested that Li submit it as his doctoral dissertation.<sup>14</sup>

Fieldwork for a doctoral degree in language studies was relatively new. For comparative philology, work was usually done in the library or the personal study. Even Bloomfield, an accomplished scholar of American Indian languages by then, completed his dissertation in German philology without fieldwork. Sapir, however, took fieldwork for language studies seriously, thanks to his previous training in anthropology. 'Fieldwork among primitive peoples is the very life of [the anthropologists'] discipline', Sapir said. He wanted to let Li 'develop a first-hand acquaintance with field methods in the study of aboriginal languages.'<sup>15</sup>

<sup>11</sup> Sapir offered a 'Psychology of Language' course in 1927–28, which Li never mentioned taking. *The University of Chicago Announcements: Annual Register, 1926–1927* (Chicago, 1927), 172–3; *The University of Chicago Announcements: Annual Register, 1927–1928* (Chicago, 1928), 196–7; Li, 'Fang-Kuei Li', 10–12. For the early curriculum of language studies at Chicago, see also Michael Silverstein, 'The History of Organization of a University of Chicago Unit Dealing with Linguistics', 2006, 1–2 <<http://home.uchicago.edu/~merchant/History.of.Linguistics.Department.Chicago.pdf>>.

<sup>12</sup> Li, 'Fang-Kuei Li', 9–13.

<sup>13</sup> *Ibid.*, 14–16.

<sup>14</sup> *Ibid.*, 17, 18.

<sup>15</sup> Edward Sapir, 'An Expedition to Ancient America: A Professor and a Chinese Student Rescue the Vanishing Language and Culture of the Hupas in Northern California', *The University of Chicago Magazine*, 20 (1927), 10.

Sapir and his contemporaries wrote very little about the content of field methods. Presumably Li just picked them up directly from Sapir as the two of them worked alongside one another in the field. Li directly observed Sapir selecting and interviewing informants and saw his advisor take down and organize transcriptions first hand. The characteristics of language fieldwork from this period can only be partly induced from Li's study record, his oral history, and the few of Sapir's writings that touched upon this. The first of these common characteristics was the selection of an informant (or informants) who spoke both English and the native language; an interpreter was used if no such informant existed.<sup>16</sup> The goal of the fieldwork was not to learn to speak the language, but instead to record it and analyze it on paper.

Second, the recording depended mainly on transcription, especially transcription in phonetic symbols. American language scholars did not bring recording devices with them into the field, for at this time the cylinder phonograph allowed very short recording times and was hard to transport and operate on the Indian reservations.<sup>17</sup> Nothing in Li's oral history suggests that he learned transcription or phonetics with Sapir or anyone else before the field trip. Yet, since he studied Sarcee for his MA thesis, which had previously only been available in transcription, we can deduce that he must have learned to read transcriptions in class (probably with Clarence E. Parmenter, the phonetics instructor at Chicago) or by working in private with one of his teachers, most likely Sapir.<sup>18</sup> In the field, Sapir allowed Li to observe the way he interviewed the informant. Sapir often started by asking the informant to say, for example, 'I am gone' and 'he is gone' in the Indian language. Sapir and Li each wrote down what they heard and compared their notes only in the evening. Li learned or consolidated his hearing and transcription by corroborating it with Sapir's side by side.

Third, funding for dissertation fieldwork was available. As seen above, Sapir had received financial support for his fieldwork in graduate school.

<sup>16</sup> Ibid, 11.

<sup>17</sup> Julia S. Falk, *Women, Language and Linguistics: Three American Stories from the First Half of the Twentieth Century* (London, 2002), 117.

<sup>18</sup> At Chicago, Clarence L. Parmenter, taught 'Physiological Phonetics' and 'Experimental Phonetics', courses also listed under Li's department. *The University of Chicago Announcements: Annual Register, 1925-1926* (Chicago, 1926), 173. According to Julia Falk, phonetic transcription was not formally taught anywhere in the United States in the 1920s and '30s. Falk, *Women, Language and Linguistics*, 117. Sapir indicated in a letter that he taught a phonetics course in the academic year 1926-27, and that eleven students were in that class. Edward Sapir, 'To Alfred Kroeber', 11 February 1927, 3, A. L. Kroeber Papers (1869-1972), Bancroft Library, The University of California at Berkeley. This might have been the course 'General Introduction to Linguistics'.

Li received his aid from the Committee on Native American Languages, which, supported by the American Council of Learned Societies, consisted of Boas (chair), Sapir, and Bloomfield. Sapir wrote a letter of strong support to Boas and secured the funding for Li's fieldwork. Sapir wrote another letter to Kroeber, who after completing study with Boas had been teaching at the University of California in Berkeley, obtaining an institutional sponsorship for Li.<sup>19</sup>

Fourth, the objective of fieldwork was the empirical description and analysis of an Indian language, though for Sapir there were other incentives. Li's dissertation, which derived from his fieldwork, studied the phonology (consonants and vowels), morphology (prefixes of several kinds and classifiers), and lexicon (verb stems, noun stems, pronouns, numerals, and particles) of Mattole, and produced a transcription of Mattole stories.<sup>20</sup> Sapir, in addition, sought the original features of the whole Athabaskan family, to which Mattole belonged, based on the work by himself, Li, and others on Navajo, Sarcee, and more Athabaskan languages.<sup>21</sup> Sapir acknowledged that the work was largely an application of the Indo-European comparative method to American Indian languages.<sup>22</sup> In a paper that was published posthumously, Sapir elaborated on the significance of the fieldwork on American Indian languages that went beyond Indo-European philology:

It is of great pedagogical importance for a young Indo-Europeanist or Semitist to try to work out inductively the phonetic system and morphology of some language which is of an utterly different structure from those that he has been studying. Such an experience frees him from numerous misconceptions and gives him the very best evidence that he could wish for the phonetic and grammatical consistency of a language that is handed down entirely by word of mouth. One may go so far as to say that only students who have had this type of experience have a thoroughly realistic idea of what language is.<sup>23</sup>

Lastly, the success of the fieldwork depended primarily on the investigator's ears. Linguists from this period constantly praised their colleagues for their good ears or complained about others for their bad ears. Li was

<sup>19</sup> Edward Sapir, 'To Franz Boas', 9 May 1927, 13, Franz Boas Papers, American Philosophical Society; Sapir, 'To Alfred Kroeber'.

<sup>20</sup> Fang-Kuei Li, 'Mattole, an Athabaskan Language' (unpublished Ph.D. Dissertation, University of Chicago, 1928).

<sup>21</sup> Sapir, 'An Expedition to Ancient America: A Professor and a Chinese Student Rescue the Vanishing Language and Culture of the Hupas in Northern California', 11.

<sup>22</sup> Edward Sapir, 'The Status of Linguistics as a Science', *Language*, 5/4 (1929), 207.

<sup>23</sup> Edward Sapir, 'The Relation of American Indian Linguistics to General Linguistics', *Southwestern Journal of Anthropology*, 3/1 (1947), 4.

distinguished in Sapir's mind by his excellent ears.<sup>24</sup> Interestingly, they spoke of ears as a gift, and do not seem to have discussed the possibility that good ears could be the result of proper training. The training of ears, or auditory training, will be considered in the discussion of Daniel Jones's Department of Phonetics at University College London below.

Like Boas, Sapir continued to train all his students, except Li, in both anthropology and linguistics. Only Li was allowed to specialize in linguistics alone. Sapir expected Li to do fieldwork, as did students of anthropology; he never asked him to take any courses in that department or to do any ethnographic observation in the field or for his dissertation. Understandably, the bond between anthropology and linguistics was easier for Li to break, for after all, his departmental affiliation was comparative philology and linguistics.

Bloomfield formed an intriguing contrast to Sapir. In one class Bloomfield assigned a medieval document to Li,<sup>25</sup> asking him to find any Germanic use of case in Old English. Li reported a particular use of the genitive. When Li completed an outline of his finding, Bloomfield asked him to expand it into a dissertation. Li did not follow the suggestion, because he had already written a dissertation with Sapir—which Bloomfield had not known.<sup>26</sup> While Sapir arranged for Li to keep linguistics as his sole discipline, Bloomfield asked Li to stay within the terrain of textual studies, the traditional subject of philology, for his dissertation. This is significant, for Bloomfield himself had begun work on American Indian languages by then. What he did with Li was not an exception. The few other PhDs in Li's department in the 1920s and '30s worked on classical, Germanic (including Norwegian), and Iranian philology based on textual studies.<sup>27</sup> Li was the only person who worked for his PhD on a subject not traditionally defined as philology.

Those pursuing language studies, both men and women, did fieldwork for their dissertations if they were in the department of anthropology. Harry Hoiijer (1904–1976) completed at Chicago a dissertation based on his fieldwork under Sapir in 1931. He received more organized fieldwork

<sup>24</sup> Sapir, 'To Alfred Kroeber', 4; Li, 'Fang-Kuei Li', 19, 20, 21.

<sup>25</sup> King Alfred the Great's Old English translation of *Pastoral Care* from the ninth century. *Ibid.*, 11–12.

<sup>26</sup> In fact Bloomfield advised very few doctoral students throughout his career.

<sup>27</sup> Clive Harcourt Carruthers (PhD 1926) was a classical philologist, Guy Richard Vowles (also 1926) became professor of German but specifically worked on Norwegian philology. Francis Ralph Preveden (PhD 1927) did work in classical philology and attempted to create a chair in Croatian studies in the United States. George Sherman Lane (1930 PhD) studied Sanskrit and came to work on Tocharian, an Iranian language. *Register of Doctors of Philosophy, June, 1893–April, 1938* (Chicago, 1938), 47–8.



training in the Laboratory of Anthropology Field School in New Mexico that Sapir directed. Though it was a laboratory of anthropology, both linguistic and anthropological fieldwork was carried out.<sup>28</sup> Mary Haas (1910–1996) first studied with Sapir in Chicago, moved with him to Yale in 1931, and received her doctorate there. She did her first fieldwork with her husband and fellow student Morris Swadesh (1909–1967). Haas entered language studies after another woman, Gladys A. Reichard (1893–1955). While studying with Boas at Columbia, Reichard did her fieldwork with the senior scholar Pliny Earle Goddard (1869–1928) and received her PhD in 1925.<sup>29</sup> Reichard, Hoijer, Haas, and Swadesh all did both ethnographical and linguistic work in the field. Hoijer especially continued to work on both through his career.

In the 1930s, however, there emerged a distinction between two groups of Sapir's students at Yale. One was composed of 'not very linguistic anthropologists' and the other of 'not very anthropological linguists'.<sup>30</sup> Swadesh and Haas belonged to the linguist group. Employment conditions were difficult during the Depression. They were perhaps somewhat better for anthropologists, as there were already anthropology departments and museums in the United States, but not favorable to linguists, and even less to women linguists. Haas went from one grant to another, finally joining the faculty of the Department of Oriental Languages at Berkeley in 1948.<sup>31</sup>

## Britain

Britain required no graduate degree for academic appointments in almost all fields (and in language sciences in particular), and offered limited graduate courses, until quite late in the twentieth century.<sup>32</sup> Daniel Jones

<sup>28</sup> The objective of the laboratory school was to study the culture and language of the Navajo tribe. It began with a week of preliminary lectures, four hours a day, on Navajo morphology and then worked directly with Navajo informants and interpreters. David W. Dinwoodie, 'Textuality and the "Voices" of Informants: The Case of Edward Sapir's 1929 Navajo Field School', *Anthropological Linguistics*, 41 (1999), 170.

<sup>29</sup> For Reichard, see Falk, *Women, Language and Linguistics*, 111–19.

<sup>30</sup> Stephen O. Murray, 'A 1978 Interview with Mary R. Haas', *Anthropological Linguistics*, 39/4 (1997), 695, 698; Regna Darnell, 'Mary R. Haas and the "First Yale School of Linguistics"', *Anthropological Linguistics*, 39/4 (1997), 557.

<sup>31</sup> Victoria Golla, 'The Formative Influences on Mary R. Haas's Career', *Anthropological Linguistics*, 39/4 (1997), 553; Darnell, 'Mary R. Haas and the "First Yale School of Linguistics"', 562.

<sup>32</sup> The PhD became an expected credential for a university teaching position first in the natural sciences and technology, around the mid-twentieth century. This happened later in the humanities and social sciences. See, for example, Renate Simpson, *How the PhD Came to Britain: A Century of Struggle for Postgraduate Education* (Guildford, Surrey, England, 1983), 162; Ernest Rudd, 'The Value of a Ph.D in Science or Technology in Britain', *European Journal of Education*, 21/3 (1986), 232.

(1881–1967), the most important British scholar of language in the first half of the twentieth century, had no graduate degree. Instead of philological training, he earned a bachelor's degree in law, though without interest in a legal career. He was exposed to phonetics when learning German in a language program that was led by William Tilly (1860–1935), a follower of Wilhelm Viëtor (1850–1918), professor of English philology at Marburg and the champion of the Reform Movement in language teaching.<sup>33</sup> For Viëtor and Tilly, language learning should no longer be limited to memorization and translation exercises on paper, and must include actual and precise listening and speaking. They proposed the use of phonetic symbols to convey accurate pronunciations in their heavy emphasis on listening and speaking. After German, Jones learned French in another language program that followed Viëtor's method. This program was run by the French phonetician Paul Passy (1859–1940) in Paris. While learning French in Paris, Jones took the opportunity to sit in on a course that Passy led at the *École Pratique des Hautes Études*. This course ran like a seminar, in which students took turns presenting a paper based on their phonetic analysis of a dialect or a minor language.<sup>34</sup> This was where Jones learned research methods. Though he received no degree from the Sorbonne,<sup>35</sup> his performance won Passy's enthusiastic support for a position at University College London (UCL).

The timing was great for Jones's appointment at the UCL in 1906. His predecessor, Ernest Edwards (1871–1948), had also studied with Passy. Thus, his French master's recommendation worked in Jones's favor. In addition, Edwards left to be the inspector of schools in London. In that position he encouraged all language teachers in schools to apply phonetics to their teaching. Indeed, London's board of education added phonetics to regular training of elementary schoolteachers. This addition ensured that Jones had a steady stream of schoolteachers in his evening class on phonetics, the only one in London at the time, or rather, Britain.<sup>36</sup> In addition, different language departments at UCL, inspired by the precedents of Viëtor in Germany and Passy in France, also developed an interest in phonetics. Jones was first hired by the French department, though the Department of German also had offered a course in phonetics shortly

<sup>33</sup> A. P. R. Howatt, *A History of English Language Teaching* (Oxford, 1984), 131–8, 161–79.

<sup>34</sup> Beverley Collins and Inger M. Mees, *The Real Professor Higgins: The Life and Career of Daniel Jones* (Berlin & New York, 1999), 25.

<sup>35</sup> Jones did take the examination for a certificate in the phonetics of French and received an excellent score. *Ibid.*, 25–6.

<sup>36</sup> Daniel Jones, *The Pronunciation of English* (Cambridge, 1909), viii; Collins and Mees, *The Real Professor Higgins*, 29, 30.

before his arrival. Jones had his own department for phonetics in just a few years. In the academic year 1915–16, ten years after Jones's arrival at UCL, there were fifty-two courses listed in the offerings of his department, most of which were provided for students from the individual language departments.<sup>37</sup> By 1922, he had nine full-time assistants in his department.<sup>38</sup> The interest in phonetics therefore was high at the time of Jones's appointment and soared shortly thereafter.

New factors after World War I further elevated the political and cultural value of phonetics. The war spurred the proposal of a national committee, commissioned by Great Britain's board of schools, to consolidate national identity by enhancing the teaching of the English language and literature in elementary and higher education. The methods they recommended included 'correct pronunciation and clear articulation in the sounded speech of Standard English' and 'clear and correct oral expression and writing in Standard English',<sup>39</sup> both of which required phonetic expertise. Meanwhile, the British government directed resources to the teaching of colonial languages to officials, officers, traders, and missionaries who would set off overseas. Resources also went to the teaching of English in the colonies, as the education of colonial subjects in English was considered essential to instilling loyalty to the British crown. Besides, Jones was invited to sit on the Advisory Committee on Spoken English of the BBC (the British Broadcasting Company), which was started in the 1920s to give counsel on the announcers' pronunciation.<sup>40</sup>

Jones's department actively participated in these efforts. He even traveled to India to teach phonetics to English teachers. The tremendous need for phonetics generated a spinoff of his department at the School of Oriental Studies, an institution established to serve Britain's imperial cause. This new phonetics department, opened in 1927, was headed by Jones's assistant Arthur Lloyd James (1884–1943).<sup>41</sup>

Like Jones, most of the students and assistants who worked with him in the 1920s and '30s started their academic careers with no graduate degree and little, if any, philological training. The best known of them were Lloyd James, Stephen Jones (no relation to Daniel, 1872–1942), Harold E. Palmer (1877–1949), Lilius Armstrong (1882–1937), Ida C. Ward (1880–1949), and J. R. Firth (1896–1960). Of them all, only Lloyd James came with

<sup>37</sup> *Ibid.*, 139.

<sup>38</sup> Daniel Jones, 'The London School of Phonetics (1946)', in Beverley Collins and Inger M. Mees (eds.), *Selected Works*, viii (London & New York, 2003), [3].

<sup>39</sup> Brian Doyle, *English and Englishness* (London & New York, 1989), 50.

<sup>40</sup> Collins and Mees, *The Real Professor Higgins*, 316, 367. <sup>41</sup> *Ibid.*, 275.

some previous training in philology.<sup>42</sup> Except Palmer, who joined Jones's department as a distinguished language teacher, all of them took Jones's postgraduate research course, which was modeled on Passy's course in Paris.<sup>43</sup> Jones then selected the highest performing of them to work as assistants or lecturers and share the load of teaching in a wide range of languages. He trained them on the job, so to speak, and let them specialize in phonetics for the teaching of an individual language, African languages, experimental phonetics, or even speech defects. Most of them first started as teachers of modern languages at schools or colleges.<sup>44</sup> Though without graduate degrees, several of them moved on to become chairs in phonetics or linguistics later, on the strength of their publications.

Jones's department emphasized the training of ears, which was first imparted to his early students and seriously applied to the courses that the department offered. As seen above, American scholars of language emphasized the importance of ears, although they were notably silent about auditory training. Their British colleagues, on the other hand, made the training of ears explicit. 'Without a highly trained ear, an accurate pronunciation is impossible', they declared. One who could hear only outstanding features of pronunciation could not speak well, and 'such a teacher will never teach a good pronunciation.'<sup>45</sup> So Jones's phonetics department trained students to discriminate with accuracy the sounds of their native languages. They also did systematic exercises in which sounds and successions of sounds in invented meaningless words were dictated to them. Students then wrote down the sounds in the International Phonetic Alphabet devised by Daniel Jones and Paul Passy. If they did not get the sounds right, the instructor would repeat alternately what the student wrote down and what was actually said. Thereby the students gradually came to perceive the differences between sounds that they had confused.<sup>46</sup>

<sup>42</sup> Arthur Lloyd James received undergraduate education in French at University College, Cardiff, and then studied as an 'advanced student' at Trinity College, Cambridge, specializing in Old French and Provençal. He could have had some French philology, and perhaps also some training in phonetics. He taught French and phonetics at a teacher training college in London before he began his work at UCL. *Ibid.*, 275.

<sup>43</sup> In the 1920s, it was listed as 'An Advanced Course for Those Desiring to Qualify as Teachers of Phonetics'. Students who wanted to take this course had to pass a preliminary examination. *University College Calendar 1925-26* (London, 1925), 47. On Palmer, see Collins and Mees, *The Real Professor Higgins*, 140.

<sup>44</sup> Firth, who taught as professor of English at the University of the Punjab, Lahore, also fitted this pattern. One exception was Stephen Jones, who was a schoolteacher of physics. *Ibid.*, 320, 132.

<sup>45</sup> Ida C. Ward, 'The Phonetics Department, University College, London', *Revue de Phonétique*, 4 (1928), 48.

<sup>46</sup> Ward, 'The Phonetics Department, University College, London', 49.

The emphasis on ear training was indicated in the course descriptions of the department in the UCL Calendar.<sup>47</sup>

British phoneticians also emphasized the ability to reproduce sounds. The primary goal of Jones's phonetic training, derived from language teaching, was always to pronounce the national or foreign language accurately. Thus students practiced to control their speech organs to reproduce the native speaker's pronunciation. It was not just the reproduction of individual sounds, but also of correct stress, intonation, and fluency.<sup>48</sup>

Experimental phonetics supplemented Jones's applied phonetics, used for language teaching and learning. The experimental section of Jones's department was entrusted to Stephen Johns, previously a schoolteacher of physics and the longtime superintendent of the lab. Experimental phonetics was based in the laboratory and can be seen as a graphical analysis of sounds. This subject will be examined in the section on France, where this approach first started.

The areas of research in Jones's department at the UCL and its spinoff at the SOAS were manifold. His students usually started with the phonetics of English and French, and then often applied phonetical methods to empirical studies of other European, Asian, or African languages. The first goal was learning and teaching those languages, and the second was to establish or reform the alphabet and orthography of unwritten languages.<sup>49</sup> For foreign languages, the investigators worked with native speakers who lived in London. They investigated the phonetic structure of individual languages, which consisted of pronunciation of words and sentences, stress, intonation, rhythm, and other features. They also produced transcriptions of sentences, conversations, and stories with a phonetic alphabet.<sup>50</sup> The department also had theoretical interest in the physical, mental, and functional nature of the phoneme, the unit of sound. Empirical knowledge of the phoneme in different languages helped investigators pursue their theoretical studies.<sup>51</sup>

Women language scholars rose in Daniel Jones's department probably earlier and faster than elsewhere. In the academic year 1925–26, there were eleven members on the faculty of Jones's department, including himself. Seven were women, including Armstrong, the only senior lecturer.<sup>52</sup> Armstrong started as a schoolteacher and was a part-time student in Jones's evening course. Her gift in phonetics won her the first full-time assistantship

<sup>47</sup> For example, *University College Calendar 1925–26*, 42–50.

<sup>48</sup> Ward, 'The Phonetics Department', 50. <sup>49</sup> *Ibid.*, 51.

<sup>50</sup> *Ibid.*, 52. <sup>51</sup> Jones, 'The London School of Phonetics (1946)', [8]–[11].

<sup>52</sup> *University College Calendar 1925–26*, xl–xli.

in Jones's department in 1918.<sup>53</sup> Ward likewise was first a teacher and became a full-time assistant a year later.<sup>54</sup> Both of them began with English phonetics and then applied their training to African languages. Armstrong stayed in Jones's department until her untimely death in 1937, while Ward moved in 1932 to the new Department of Phonetics at the SOAS that was headed by Lloyd James, and acquired the Professorship of West African Languages in 1944.<sup>55</sup>

### France

In France, leading language scholars Passy (1859–1939), Antoine Meillet (1866–1936), and Joseph Vendryes (1875–1960) were trained in philological work in the classroom. The eldest of the three, Passy was home schooled and then studied Sanskrit, Gothic, and Latin at the *École Pratique des Hautes Études*. He found his love for phonetics while teaching English and German in training schools for primary teachers. He defended his doctoral thesis in 1891 and three years later became a *maître de conférence* (roughly equivalent to assistant or associate professor on the American academic scale) in general and comparative phonetics at the *École Pratique*, a position created specifically for him.<sup>56</sup> Meillet studied Classical, Iranian, and Sanskrit philology at the Sorbonne and took courses at the *École Pratique*. Thereafter he taught secondary school, passed the *agrégation* (a qualifying examination for senior appointments in secondary school) in 1889, and began teaching as *maître de conférence* at the *École Pratique des Hautes Études* (in old Iranian and comparative grammar) in 1894. He gained his doctorate in 1897, and then a chair in comparative grammar (i.e., comparative philology) in the Collège de France in 1906.<sup>57</sup> Vendryes studied Classical and Oriental philology, plus German and Celtic, at Paris, passed *agrégation* in 1896, visited the University of Freiburg in Germany

<sup>53</sup> Collins and Mees, *The Real Professor Higgins*, 194–5.

<sup>54</sup> *Ibid.*, 256–7.

<sup>55</sup> R. E. Asher, 'Armstrong, Liliás Eveline (1882–1937), Phonetician', *Oxford Dictionary of National Biography* (Oxford, 2004); B. S. Collins and I. M. Mees, 'Armstrong, Liliás Eveline (1882–1937)', Keith Brown (ed.), *Encyclopedia of Language & Linguistics* (Oxford, 2006), 478–9; Diedrich Westermann, 'Professor Ida Ward, An Appreciation', *Africa: Journal of the International African Institute*, 20/1 (1950), 2–4; E. L. Lasebikan, 'Ida Ward', *African Affairs*, 49/194 (1950), 30–2.

<sup>56</sup> Richard C. Smith, 'Paul Passy's Life and Career', Center for Applied Linguistics, Warwick University, 2007 <[http://www2.warwick.ac.uk/fac/soc/al/research/collect/elt\\_archive/halloffame/passy/life](http://www2.warwick.ac.uk/fac/soc/al/research/collect/elt_archive/halloffame/passy/life)> [accessed 21 November 2015]; Enrica Galazzi, '1880–1914. Le combat des jeunes phonéticiens: Paul Passy', *Cahiers Ferdinand de Saussure*, 46 (1992), 118.

<sup>57</sup> Joseph Vendryes, 'Antoine Meillet', *École pratique des hautes études, Section des sciences historiques et philologiques*, 70/1 (1937), 5–37; Karl Krippes, 'Meillet, the Researcher and the Teacher', *Histoire Épistémologie Langage*, 10/2 (1988), 277–83.

for a year (1888–1889), and taught as a *maître de conférence* at the newly founded University of Clermont-Ferrand before defending his doctoral thesis in 1902. He received a professorship at Caen and eventually was awarded the chair of comparative grammar at Paris and the directorship of Celtic philology at the *École Pratique des Hautes Études*.<sup>58</sup>

French scholars' common career path had no equivalent in other countries. They received what may be called undergraduate education at the *École Normale Supérieure* or a university (usually Paris). The academically minded of them received specialized training in lectures and seminars at the *École Pratique des Hautes Études*, affiliated with the University of Paris, that was founded on the German model of research education. Generations of scholars down to Passy and Meillet usually taught for a few years at *lycée* (French secondary school) after completing their undergraduate degree (*licence*). University (or *École Normale*) graduates of Vendryes' generation and later could skip secondary school teaching and instead begin their academic career as *maîtres de conférence* in the university or *École Pratique des Hautes Études*. While teaching, they prepared for the *agrégation* and, if successful, then did their doctoral research side by side with high school or junior university teaching. Supervision by doctoral advisors was often distant, and their meetings with their advisees were infrequent. Only with a doctorate in hand and good publications could junior scholars expect to receive a professorship in a provincial university. The best of them would move from the province to elite institutions in Paris, such as the Sorbonne and the Collège de France.

Continuing on this path, the younger generation of language scholars benefited from three recent trends that had been strong in France since the late nineteenth century: applied phonetics, experimental phonetics, and dialectology. Inspired by Viëtor, Passy taught himself phonetics and applied it to language teaching in the language program he organized. He worked with his former student Daniel Jones on the International Phonetic Alphabet (Figure 9.1), making it the internationally accepted system for phonetic transcriptions.<sup>59</sup>

The world leader in experimental phonetics then was Pierre-Jean Rousselot (1846–1924). Starting in the late 1870s to work on unwritten French dialects, known as *patois*, Rousselot studied with Gaston Paris (1839–1903) and Paul Meyer (1840–1917), both philologists. Thus his doctoral thesis on Gallo-Roman dialects may be seen as an offshoot of

<sup>58</sup> Édouard Bachellery, 'Joseph Vendryes (1875–1960)', *École pratique des hautes études. 4e section, Sciences historiques et philologiques*, 94/1 (1961), 20.

<sup>59</sup> Paul Édouard Passy and Daniel Jones, *The Principles of the International Phonetic Association: Being a Description of the International Phonetic Alphabet and the Manner of Using It: Illustrated by Texts in 51 Languages* (Paris, 1912).

	Lips	Lip-teeth	Point and Blade	Front	Back	Uvula	Throat
CONSONANTS	Plosive	p b	t d	c ɟ	k ɡ	q ɢ	ʔ
	Nasal	m	n	ɲ	ŋ	ɴ	
	Lateral		l ɭ	ɮ	(ɮ)		
	Rolled		r ɽ			ʀ	
	Fricative	f v ɸ β σ ϖ	ʃ ʒ	θ ð s z ç ʝ ʎ	ç ʝ (ɥ)	(m w) x ɣ	ħ ʕ
VOWELS	Close	(u ɯ y) (ø ɤ)		Front: i y Mixed: ɨ ʉ	Back: ɯ u		
	Half-close	(o ɔ ø)		e ø ɛ ɞ ə	ɤ ɔ		
	Half-open	(ɔ ɔ̃ œ)		ɛ œ ɛ̃ ɔ̃	ɔ ɔ̃		
	Open			ɛ ɞ æ ɶ a ɑ			

(Sounds appearing twice on the chart have a double articulation, the secondary articulation being shown by the symbol in brackets.)

Figure 9.1 International Phonetic Alphabet, which categorizes vowels and consonants according to the voice organs they involve and the positions of the tongue when they are produced. Reprinted from Passy and Jones, *The Principles of the International Phonetic Association*, p. 10.

French philology.<sup>60</sup> Rousselot then moved on to study ways of analyzing the different pronunciations of French dialectical words with mechanical instruments. He served as the preparer at the Laboratory of Experimental Phonetics in the Collège de France, created in 1898 under the chair of comparative grammar, Michel Bréal (1832–1915), Meillet’s predecessor. Rousselot’s pioneering publications made him the most respected experimental phonetician across Europe in the early twentieth century.<sup>61</sup>

Experimental phonetics was done in the laboratory and relied heavily on graphical analysis, which formed a contrast to auditory training. Drawing a great deal from anatomy and mechanical technology, Rousselot studied the positions, shapes, and mutual contacts of voice organs when producing individual sounds. Figure 9.2 shows the positions of the tongue when certain vowels in Bostonian English are pronounced. The left end of the diagram shows the front teeth, the top curve depicts the palate, and the

<sup>60</sup> Hubert Pernot, ‘L’abbé Rousselot (1846–1924)’, *Revue de Phonétique*, 5 (1928), 12. For the political and cultural context of Rousselot’s early dialect studies, see Haun Saussy, *The Ethnography of Rhythm: Orality and Its Technologies* (New York, 2016), 98–100; David L. Hoyt, ‘Dialects of Modernization in France and Italy, 1865–1900’, in David L. Hoyt and Karen Oslund (eds.), *The Study of Language and the Politics of Community in Global Context* (Lanham, MD, 2006), 85–118.

<sup>61</sup> Pernot, ‘L’abbé Rousselot (1846–1924)’, 19.



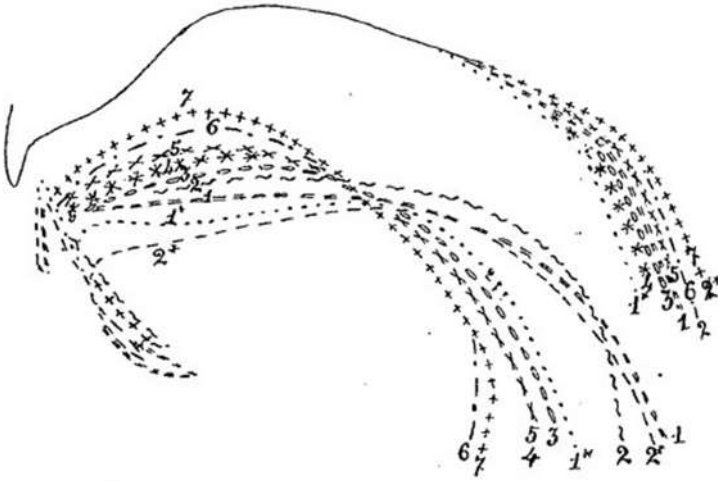


Fig. 431.

Position de la langue et du voile du palais pour les voyelles anglaises de Boston.

Série antérieure.

1. a (part), — 2. æ (upper), — 3. ā (bat), — 4. ē (bet), — 5. é (baît), — 6. ī (bit), — 7. í (beat).  
 1°. æ (hurî), — 2°. æ (hull).

Figure 9.2 Positions of tongue pronouncing individual vowels. Reproduced from Pierre-Jean Rousselot, *Principes de phonétique expérimentale*, i (Paris: H. Welter, 1897), 650.

lines below represent the positions of the tongues in the pronunciations of different vowels. Rousselot drew this figure based on the results that Charles Hall Grandgent (1862–1938) derived from visual observations. Later phoneticians used X-ray to achieve better results.

Figure 9.3 consists of sixteen palatograms. Palatography works by painting the palate, the roof of the mouth, with dye. The tongue takes off the dye of the area it touches when producing a particular sound. By pressing a blank piece of paper or foil against the palate, a palatogram of a particular sound is made. The palatograms in Figure 3 show the areas of the tongue-palate contacts for the spelling, or articulation, of the Parisian nasal vowels *ã*, *ô*, *ê* with two consonants, *l* in front and *g* in the rear.

Figure 9.4 compares the positions of the tongue (L in the graph, for *langue*) in the pronunciations of *b-a* and *b-i*. The position of the tongue is measured by placing on the tongue a bar whose movement is translated to

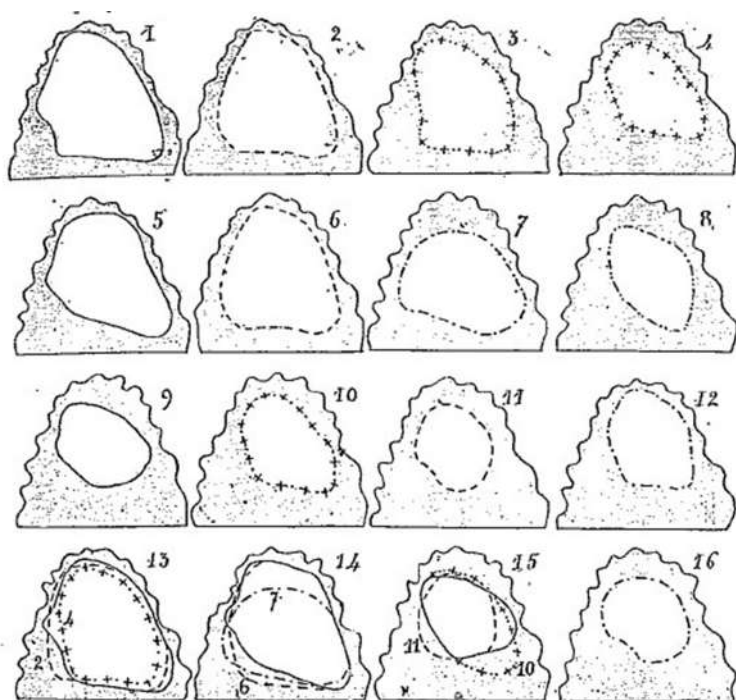


Fig. 441.

Analyse des nasales parisiennes  $\tilde{a}$   $\tilde{o}$   $\tilde{e}$ .

(C)

1.  $l̄g$ , — 2.  $l̄g$ , — 3.  $l̄g$ , — 4.  $l̄g$ .  
 5.  $l̄g$ , — 6.  $l̄g$ , — 7.  $log$ , — 8.  $l̄g$ .  
 6.  $l̄g$ , — 10.  $lag$ , — 11.  $l̄g$ , — 12.  $leg$ .  
 13.  $l̄g$  comparé à  $l̄g$  (2) et  $l̄g$  (4), — 14.  $l̄g$  comparé à  $l̄g$  (2) et  $log$  (7). — 15.  $l̄g$  comparé à  $lag$  (4) et à  $l̄g$  (11). — 16.  $lag$ .

Figure 9.3 Palatograms comparing different articulations of vowels and consonants in Parisian French. Reproduced from Rousselot, *Principes de phonétique expérimentale*, i, 661.

a needle on the rotating drum. The chart shows that the tongue moves significantly higher when the vowel *i* follows the consonant *b* than when *a* follows *b*. The B curve traces the vibration of the breath that is transferred to another needle on the drum.

The tracing of breath depended on the kymograph (*kyma*: wave in Greek). The investigator spoke into a mouthpiece that transferred the vibration of the air through a tube (Figure 9.5). The vibration was then converted to the up-and-down motions of a needle that scratched the

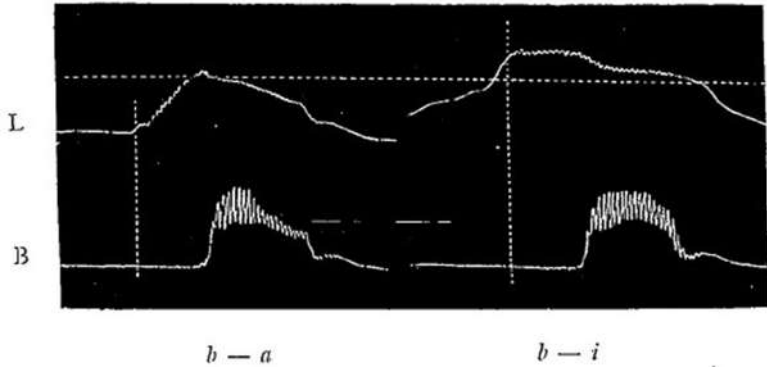


Fig. 624.

L. Langue. — B. Souffle.

La différence de hauteur de la langue pour *ba* et pour *bi* est marquée par la ligne pointillée horizontale.

Figure 9.4 A chart showing the elevations of the tongue when pronouncing different sounds. Reproduced from Rousselot, *Principes de phonétique expérimentale*, i, 941.

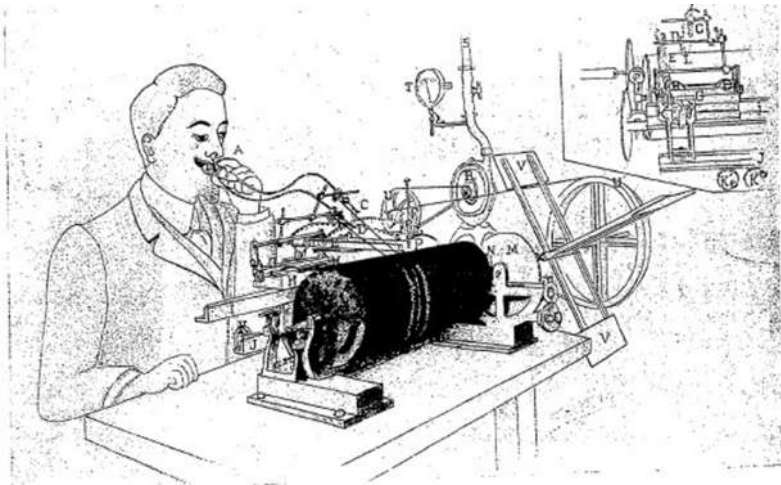


Figure 9.5 The kymograph. Reprinted from Rousselot, *Principes de phonétique expérimentale*, i, 941.

smoked paper on a rotating drum. Later models provided optional sensors attached to the nose and the throat. The air vibrations they created could likewise travel through tubes and were transferred onto the chart.

Graphics was the predominant mode of presentation in the laboratory investigations of voice. Invisible and intangible, voice can be said to be 'immaterial', if matter is, as defined by René Descartes, understood as *res extensa* (extended substance). However, it produces physical effects. It is usually perceived by the ears. In the phonetic laboratory it was registered through x-ray, palatograms, and kymographs, instruments that detected positions, contacts, and vibrations of body organs. All these effects then were translated into graphics that made sound visible, analyzable, and measurable for people with ordinary ears.<sup>62</sup>

Phonetics in France had a long and strong tie to dialect studies, though interest in spoken languages gradually emerged in modern and even Indo-European philology in the late nineteenth century. Meillet went on a field trip to the Caucasus, where he learned modern Armenian while studying ancient Armenian manuscripts.<sup>63</sup> Rousselot's experimental phonetics on French dialects in fact arose from French philology. Ferdinand Brunot (1860–1938), Jean Poirot (1873–1924), Hubert Pernot (1870–1946), and Pierre Fouché (1891–1967), the first four directors of the Institute of Phonetics at the University of Paris, were collectors and researchers of French, Finnish, and Greek dialects. Brunot even embarked in 1912 and 1913 on three recording tours of French dialects throughout the country, collecting testimonies, dialogues, folk tales, and songs in regional dialects on phonograms. This formed the core of the Archives de la Parole, a collection of sound recordings of the country that was first housed in the Institute of Phonetics at Paris.<sup>64</sup>

This institute combined work in dialectology, phonogram collections, and experimental phonetics. The collection of French dialects exemplified in the Archives de la Parole was an important part of the institute until it became the Musée de la Parole et du Geste (Museum of sound and motion pictures) in 1928. The institute acquired Rousselot's library and hosted a well-furnished laboratory.<sup>65</sup> It sponsored *Revue de phonétique*, a journal for

<sup>62</sup> For Rousselot's graphic method, see Saussy, *The Ethnography of Rhythm*, 97–115.

<sup>63</sup> Vendryes, 'Antoine Meillet', 7.

<sup>64</sup> Lionel Michaux, 'The Origins of the Audiovisual Department at the BNF, Ferdinand Brunot and the Archives de la Parole', *Europeana Sounds*, 2014 <<http://www.europeana-sounds.eu/sound-categories/spoken-word-recordings/the-origins-of-the-audiovisual-department-at-the-bnf-ferdinand-brunot-and-the-archives-de-la-parole/>> [accessed 7 August 2016].

<sup>65</sup> Hubert Pernot, 'L'Institut de Phonétique de l'Université de Paris', *Revue de phonétique*, 4 (1928), 40–2; Pascal Cordereix, 'Les enregistrements du musée de la Parole et du

experimental phonetics that was first established and coedited by Rousselot and Pernot.

The Institute of Phonetics also gave courses in phonetics and requested research papers for the degrees it granted. During the academic year 1925–26, it offered a course of seven lessons on elements of phonetics for philology students, which fifty students took, and a course on articulations of sounds, which had thirty-six students and a number of auditors. In the first course, an hour was given to the theory of phonetics and the rest to initiating students in the methods of experimental phonetics and giving them a taste (*goût*) of personal research. In addition, twenty-nine students did practical work at the Institute of Phonetics, or at the Laboratory of Speech in the National Institution of the Deaf and Mute. To do phonetics as a field for the degree of *licence*, which one received after completing university study, or a field for the advanced degree *diplôme des études supérieures*, a student had to submit a research paper (*mémoire*). In this academic year three papers were approved for the *licence* and two for the *diplôme*. The subjects included intonation of the English phrase, French intonation in different places, palatal consonants in Lithuanian, Russian vowels, and voiceless plosives.<sup>66</sup>

The case of Fu Liu (1891–1934) shows how doctoral work could have been done at the Institute of Phonetics at Paris. Liu was appointed to Peking University with his literary publications in 1917. As few talents with formal training could be found to fill university positions at the beginning of modern higher education in China, Liu received his appointment with just a high school degree. Once at Peking, he was sent overseas for advanced study on a fellowship. In 1920 he arrived in Jones's department at UCL, only to be disappointed by what he considered a crude method of analyzing tone languages. Liu was then enrolled at the Sorbonne in 1921 and received training in theory and methods of experimental phonetics at the Institute of Phonetics under Poirot. He applied his training to the analysis of Chinese intonation. To show that Chinese tones were variations in pitch, he designed an experiment with the kymograph. He invited speakers of different Chinese dialects to speak to the mouthpiece of the kymograph in his tiny apartment in Paris, recording the graphs at his dinner table.<sup>67</sup> He then converted the lengths of sound waves into pitches (Figures 6 and 7). In 1925 he presented and defended his

Geste à l'Exposition coloniale: Entre science, propagande et commerce', *Vingtième Siècle. Revue d'histoire*, 92 (2006), 40.

<sup>66</sup> *Annales de l'Université de Paris* (Paris, 1926), i, 400–1.

<sup>67</sup> Yuen Ren Chao, 'Liu Bannong Xiansheng [Mr. Fu Liu] 1891–1934', in *Zhao Yuanren Quanji* (Complete Works of Yuan Ren Chao) (Beijing, 2007), 901.

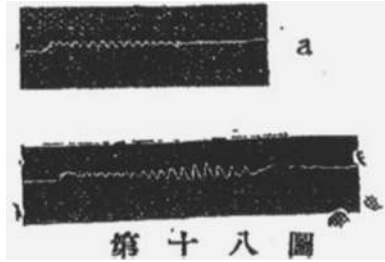


Figure 9.6 The upper graph recorded a sound wave that had a longer wavelength (thus lower in pitch) at first and changed into shorter wave lengths later. The lower graphs recorded a reverse trend. Reproduced from Fu Liu, *Sisheng shiyan lu* (Experiments on Chinese intonation). (Shanghai, 1924), 28.

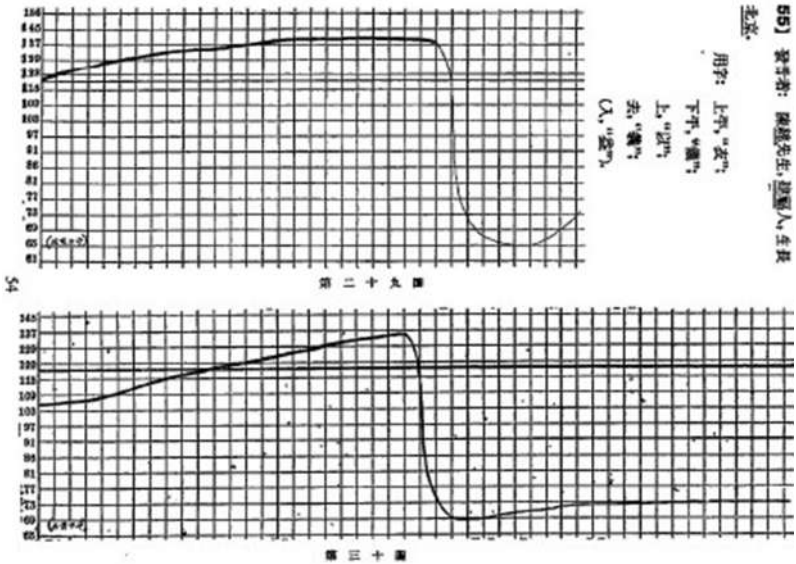


Figure 9.7 The first and second tones in mandarin Chinese converted into change in pitch. Reproduced from Fu Liu, *Sisheng shiyan lu* (Experiments on Chinese intonation). (Shanghai, 1924), 54.

experimental analysis of Chinese tones in his doctoral thesis, which was awarded the Volney Prize of the Institute of France for best work in language studies in 1925.

In France, Jeanne M. Vidon-Varney (1899–1986) and Nicolette Pernot (1903–2003) are examples of early women language scholars.

Vidon-Varney received her *licence* at Paris in 1923 and then the *Doctorat d'université*, a doctoral degree lower in prestige than the state doctorate, which did not qualify one for a French university professorship. She worked as an assistant in the Institute of Phonetics at Paris in the 1920s and early '30s and went across the Atlantic to teach at Barnard College of Columbia University in 1933. She was one of the early laboratory phoneticians in the United States, edited the phonetics section for the journal *The French Review* starting in the 1930s, and became a professor of French at Columbia in 1958. Like Vidon-Varney, Nicolette Pernot studied phonetics at Paris and then worked at the Institute of Phonetics, which her father headed from 1924 to 1930. She translated a book on modern Greek dialects and prepared phonetic transcriptions for the abovementioned *Revue de phonétique*.<sup>68</sup> She also produced recordings of French and their transcriptions. She went to the United States and taught at the Middlebury Summer Language School in 1932, joined Wellesley College as a lecturer in 1935, and later taught at the College of William and Mary.<sup>69</sup> Barnard and Wellesley were women's colleges, where early American female academics usually found positions.<sup>70</sup> Middlebury and William and Mary were among the coeducational institutions that began to appoint women to their faculties.

## Germany

Germany was the leading country in academic studies of language around the turn of the twentieth century. The abovementioned Young Grammarians movement started at Leipzig in the 1870s. The 'reform movement' in language teaching began with Viëtor at Marburg in the next decade. Germany was also a leader in many other academic disciplines, in part thanks to its well-furnished universities and a great supply of youths who aspired to take up academic careers.

In Germany, an academic path started with the Doctor of Philosophy degree, which required taking lectures and seminars in a specialized field and completing a dissertation based on original research. Though a model

<sup>68</sup> Dirk Christiaan Hesselning, *Histoire de la littérature grecque moderne*, trans. N. Pernot (Paris, 1924); Nicolette Pernot, 'Transcriptions Phonétiques', *Revue de Phonétique*, 5 (1928), 147–52, 308–13, 378–412.

<sup>69</sup> *Annales de l'Université de Paris* (Paris, 1935), x, 100; Hippolyte Parigot, 'La vie et l'école', *Le Temps*, 24016, 18 May 1927, 5; Caroline Matulea, 'Faculty Notes', *The Romanic Review*, 26/1 (1935), 72; John E. Crews, 'Foreword', in *Out of the Corner of My Eye: Living with Macular Degeneration*, by Nicolette P. Ringgold (New York, 2007), xii; 'Nicolette P. Ringgold', *Daily Press, Williamsburg Community Hospital* (12 March 2003), 1.

<sup>70</sup> Margaret W. Rossiter, *Women Scientists in America: Struggles and Strategies to 1940* (Baltimore, 1982), 9–23.

for the American PhD, the German *Doctor Philosophiae* differed from the American version in that it was the first degree after secondary school, thus in some respects parallel to an American undergraduate degree. To be able to lecture in the university, the habilitation, a postdoctoral qualification, was required. There was little formal requirement for the habilitation. In general it involved either a second substantial dissertation or a series of publications based on original research and the approval of the faculty to which the candidate belonged. To compete for academic appointments, junior scholars had to show that they had complete and rigorous scholarly training, including the PhD and the habilitation. This rigor was suspended only for extraordinary reasons, such as Germany's new colonial pursuits starting in the 1880s.

Carl Meinhof (1857–1944) and Diedrich Westermann (1875–1956), two founders of *Afrikanistik* or African studies in Germany, received their academic positions in the 1900s, without PhDs or habilitations. Meinhof received some philological training in the university, though he left without a PhD. He began his work on African languages with native speakers who lived in Germany. Westermann learned African languages on a religious mission in German colonies in Africa.<sup>71</sup> They published transcriptions, constructed grammars, and compiled dictionaries of African languages by imitating the methods and rigor of modern and comparative philology.<sup>72</sup> Meinhof was first appointed, in 1902, as a professor at the Seminar for Oriental Languages (Seminar für Orientale Sprachen, founded 1887), a practical school for training officials, merchants, and missionaries to be posted in overseas colonies. Though the seminar was attached to the University of Berlin, a professorship there was not as prestigious as an ordinary professorship at the university. In 1909 Meinhof was recruited by the newly founded Colonial Institute in Hamburg, an institution that prepared for the foundation of a new university and at the time provided advance training and research for Germany's colonial enterprise. When the Colonial Institute was transformed into the University of Hamburg after World War I, Meinhof remained professor there. Westermann acquired a teacher's position (*Lehrer*) at the Seminar for Oriental Languages in 1908 thanks to Meinhof's support. After World War I, Westermann was given an extraordinary professorship of African studies at the University of

<sup>71</sup> Sara Pugach, *Africa in Translation: A History of Colonial Linguistics in Germany and Beyond, 1814–1945* (Ann Arbor, 2012), 71–4, 127–8.

<sup>72</sup> Such as Carl Meinhof, *Grundriss einer Lautlehre der Bantusprachen, nebst Anleitung zur Aufnahme von Bantusprachen* (Leipzig, 1899); Carl Meinhof, *Grundzüge einer vergleichenden Grammatik der Bantusprachen* (Berlin, 1906); Diedrich Westermann, *Wörterbuch der Ewe-Sprache* (Berlin, 1905); Diedrich Westermann, *Grammatik der Ewe-Sprache* (Berlin, 1907).



Berlin, though only after he had secured an honorary doctorate from Hamburg. He was promoted to an ordinary professor in 1925.<sup>73</sup>

The study of African languages was special in at least two senses. First of all, after Germany's acquisition of colonies in sub-Saharan Africa, knowledge of African nature, culture, and especially languages was most valuable to the German colonial administration and to businesses. The Seminar for Oriental Languages was created precisely to fill this need.<sup>74</sup> For the same reason the Colonial Institute received many resources from the German government. African languages had previously received little, if any scholarly study. Before Meinhof, the only university instructor of African studies in Germany, Hans Stumme (1864–1936) of Leipzig, worked on Arabic in northern Africa. Stumme's work was an offshoot, so to speak, of Semitic philology. To work on sub-Saharan African languages, the seminar could only recruit talent from outside academia, thus justifying the somewhat extraordinary appointments of Meinhof and Westermann.

Second, few sub-Saharan African languages had written languages and thus differed from all previous languages that philologists had placed their hands on. Meinhof had to justify his study by elaborating its significance for comparative philology in the lecture that inaugurated his professorship at the Colonial Institute in Hamburg. Like comparative philology, he suggested, the study of African languages involved collecting words and phrases, inducing grammatical rules, producing texts by transcription, and compiling a full dictionary,<sup>75</sup> typical tasks in philology. Moreover, the studies of African languages were valuable, Meinhof argued, as these languages were pristine, not yet polluted by writing, urbanity, and contacts with foreign languages. As living languages, they could be studied empirically, repeatedly, and comprehensively with great accuracy, advantages that historical languages cannot offer.<sup>76</sup> Often dismissed as having no historical depth, African languages in fact preserved very old cognate words of ancient Egyptian and Nubian and thus were helpful for the reconstruction of those languages. To discover the laws governing sound shifts, a major concern of comparative philologists, scholars had to study sounds themselves instead of symbols. 'Sounds can only be studied in living languages, not in dead ones.'<sup>77</sup>

<sup>73</sup> Archiv der Humboldt Universität zu Berlin, Personalakten, Westermann, W 252, Bd. I, 6, W 252, Bd. II/1, 1–2.

<sup>74</sup> The seminar's teaching was not limited to African languages. Arabic, Turkish, and Far Eastern languages were also included, as Germany was seeking a greater role in the regions where these languages were spoken.

<sup>75</sup> Carl Meinhof, *An Introduction to the Study of African Languages*, trans. Alice Werner (London & New York, 1915), 2–3.

<sup>76</sup> *Ibid.*, 9–13.

<sup>77</sup> *Ibid.*, 12–13.

From early on, Meinhof placed a great emphasis on phonetics in his work on African languages. His first major work was on the phonetics, or *Lautelehre*, of Bantu (1899), a group of languages that were spoken in central and southern Africa. Shortly after his appointment at the Colonial Institute, Meinhof secured a large sum to set up a phonetics laboratory, one that made Daniel Jones jealous.<sup>78</sup> He hired Giulio Panconcelli-Calzia (1878–1966) to direct the laboratory under him. Calzia had studied with Rousselot in Paris for his doctorate and assisted Viëtor in Marburg, so he had the perfect pedigree in experimental and applied phonetics. In addition, before his appointment, he had published frequently in the first German journal for experimental phonetics and received the support of its editor, Hermann Gutzmann (1865–1966), a physician at the University of Berlin, specialized in speech therapy, another important field of input for experimental phonetics.<sup>79</sup> Westermann had no luxury of a phonetic laboratory. He, however, taught African languages as well as phonetics after he was given a chair at Berlin after World War I.<sup>80</sup>

The extraordinary resources of the Colonial Institute made its institutional successor, the University of Hamburg, a leader in language studies in Germany after the war. Hamburg, like its older peer institutions across Germany, had representation of modern philology (German, English, Romance, Swedish, Slavic, etc.). Its teaching and studies on Oriental philology (especially Japanese and Chinese) were stronger than those of many of its peers, thanks to the investments of the Colonial Institute in these fields. Hamburg also opened the Seminar for Comparative *Sprachwissenschaft* (language science), headed by a relatively junior Indo-European comparative philologist, Heinrich Junker (1889–1970), and set up a field of teaching in general and comparative language science. The special strength of Hamburg lay in the Seminar of African and Oceanic Languages, now expanded to include the languages of what the Germans called the ‘South Sea’ (*Südsee*, that is, the South Pacific), and the Institute of Phonetics (which was upgraded in 1919 and, no longer subordinate to Meinhof’s seminar, was headed by Calzia as a professor). This strength is in part seen in these two programs’ domination in course offerings in

<sup>78</sup> Collins and Mees, *The Real Professor Higgins*, 84–5.

<sup>79</sup> Gutzmann’s journal was *Medizinisch-pädagogische Monatsschrift für die gesamte Sprachheilkunde mit Einschluss der Hygiene der Stimme in Sprache und Gesang: Internationales Centralblatt für experimentelle Phonetik* (Medical pedagogic monthly for the whole speech medicine with inclusion of hygiene of sound in language and song: International journal for experimental phonetics)

<sup>80</sup> See, for example, *Verzeichnis der Vorlesungen an der königlichen Friedrich-Wilhelms-Universität zu Berlin im Sommer-Semester 1924* (Berlin, 1924), 48, 54.

general and in comparative language science, which was usually the monopoly of Indo-European comparative philologists elsewhere.

A remarkable number of courses in language science, African languages, and phonetics were available at Hamburg. Meinhof's seminar offered more than ten African languages and often half a dozen Southeast Asian and Oceanic languages for beginners. In addition, a diversity of courses in the field of general and comparative language science were in the course catalogues. Meinhof regularly taught the course on general and comparative language science. There were also theoretical courses (such as 'Fundamental Problems in the Philosophy of Language', taught by the philosopher Ernst Cassirer, and 'Emergence of Inflective Languages'), and advanced studies based on empirical work ('Comparative Bantu Grammar' and 'Comparative Phonetics of Austronesian Languages'). The field also included practical training in language research ('Method of Language Research' and 'Transcription of Unwritten Languages and Dialects'). Calzia's now independent institute offered courses on the application of phonetics to language science, on ear training, and hands-on courses that trained students to do independent work in phonetics four days a week, three hours a day.<sup>81</sup> Calzia's assistant, the musicologist Wilhelm Heinitz (1883–1963), taught melody of language, phonetic application to music, and musicology.

Some of these courses were seminars, often listed as *Übungen* in German course catalogues. As seen in Chapters 2 and 8 of this volume, German universities trained research-minded students in seminars, immersing them in updated literature, original findings, and research writing. Most students developed their dissertations in seminars. The transcription of unwritten languages and hearing, though not formally taught in the United States, were taught in seminars at Hamburg. Thus they were seen and taught as important parts of training for language scholars.

Seven students habilitated in Meinhof's seminar between 1920 and 1940. Among them, Otto Dempwolff (1871–1938) and August Klingenheben (1886–1967) worked as Meinhof's assistants in the 1910s. Dempwolff, first trained as an MD (Berlin 1892), had spent almost twenty years in the Pacific and Africa and habilitated in Hamburg in 1920 with a thesis on Indonesian lip sounds.<sup>82</sup> Klingenheben started in classical, modern, and Arabic philology and worked on African languages when he assisted Meinhof in Hamburg. He defended his dissertation with the abovementioned Stumme at Leipzig in 1920 and habilitated at Hamburg in 1924

<sup>81</sup> See the course listings of the University of Hamburg in *Verzeichnis der Vorlesungen*, for example, Wintersemester 1924/25–Sommersemester 1927.

<sup>82</sup> 'Bericht der Kommission über die Habilitation des Professor Dr. med. Otto Dempwolff' (1920), Staatsarchiv Hamburg, StAH 361–6 IV 2417, Iv.

with a thesis on the sounds of Fula, a language spoken in western and central Africa. Klingenheben was appointed an extraordinary professor at Leipzig in 1928 and called to succeed Meinhof at Hamburg in 1935.<sup>83</sup> Klingenheben's complete academic résumé, which consisted of a PhD and a habilitation, marked the coming of age of the study of African languages in German academia.<sup>84</sup>

Among the few who completed their PhDs at Meinhof's seminar between 1920 and 1940, three stood out. Two were born in South Africa. Werner Willi Max Eiselen (1899–1977), son of a German missionary, and Nicolaas J. van Warmelo (1904–1989), born to a family of Dutch descent, received their PhDs under Meinhof in 1924 and 1927 with dissertations on the phonetics and classification of Bantu languages. Both of them had received their undergraduate degrees in South Africa before their study at Hamburg, seeing as it was the model institution for colonial science (even though Germany had lost its colonies after World War I). Though they had firsthand knowledge of the African languages Bantu and Sotho, they sought a scientific study of them at Hamburg and returned home to become academic leaders and important government advisers.<sup>85</sup> Maria von Tiling (1887–1974) was among the first generation of German women to whom the doctorate became regularly accessible.<sup>86</sup> She had some schooling in French, history, and German before the war and taught in Latvia. As men were drafted during the war, she was invited to help as an assistant in the Colonial Institute. At Hamburg she studied Bantu lan-

<sup>83</sup> 'Klingenheben, August: Ausführlicher Lebenslauf', n. d., Staatsarchiv Hamburg, StAH 361-6 IV 2472. Another assistant from the 1910s was Walther Aichele, who received his PhD in Oriental philology in 1913 and assisted Meinhof in Hamburg thereafter. Interrupted by the war, he began to study and then teach Indonesian languages at Hamburg afterward. A. Teeuw, 'In Memoriam Walther Aichele', *Oriens-Extremus*, 20 (1973), 1.

<sup>84</sup> Pugach made a similar point. Pugach, *Africa in Translation*, 129. Another assistant from the 1910s, Martin Heepe, left Hamburg for the State Library in Berlin in 1921, whereas Dempwolf and Klingenheben continued to teach at Hamburg.

<sup>85</sup> Hilke Meyer-Bahlburg and Ekkehard Wolff, *Afrikanische Sprachen in Forschung und Lehre - 75 Jahre Afrikanistik in Hamburg (1909–1984)* (Berlin & Hamburg, 1986), 211; Sara Pugach, 'Carl Meinhof and the German Influence on Nicholas van Warmelo's Ethnological and Linguistic Writing, 1927–1935', *Journal of Southern African Studies*, 30/4 (2004), 825–45.

<sup>86</sup> Regular university education was not accessible to women in Prussia until 1908 (a few years earlier in other German states), first because no gymnasiums (German high schools) were open to girls. Beginning in the 1890s, women were admitted to German universities as auditors and a small number of them, through successful petitions, were granted 'extraordinary' doctorates after fulfilling all the regular requirements. Ironically, foreign women students, if they had high school education acceptable to their host universities, were able to gain ordinary doctorates in Germany starting in the 1870s. See, for instance, Annette Vogt, *Elsa Neumann—Berlins erstes Fräulein Doktor* (Berlin, 1999), 10–12; Sandra L. Singer, *Adventures Abroad: North American Women at German-Speaking Universities, 1868–1915* (Westport, CT, 2003), 15.

guages and then Somali with native speakers. She received her PhD with a dissertation on transcribed texts and phonetics of Somali in 1924 and continued to teach and publish at Hamburg until she accompanied Klingenhoben, her husband since 1927, to Leipzig and then back to Hamburg on his academic appointments. She gave up pursuing her own career.

The training in language studies at Hamburg played down the importance of fieldwork, even though its subjects were unwritten languages. Studying with Meinhof, Klingenhoben and von Tiling both picked up their knowledge of African languages in Hamburg. Meinhof preferred the metropole to the field in Africa, as he believed that the ideal location for studying African languages was a 'sterilized' laboratory, in Sara Pugach's term, that was free from the germs, wars, and cultural backwardness in African colonies.<sup>87</sup> Most of Meinhof's students worked with native speakers who either had settled in Germany or were handed over by the shipping company or the port hospital.<sup>88</sup> These African speakers could pronounce a sound as frequently as the researcher requested and held steady their mouths, lips, or tongues in front of phonetic instruments. Indeed, Meinhof placed great value on the phonetic laboratory, believing that it helped students reproduce native pronunciations with the greatest possible accuracy.

### Conclusion

This survey has focused on new developments in language studies in the 1920s and 30s at the University of Chicago, University College London, the University of Paris, and the University of Hamburg. Reflecting the shift from the study of letters to the study of sounds, language scholars employed a variety of methods for research and training, including fieldwork, auditory training, and laboratory analysis.

The study of sounds naturally valued ears. Fieldworkers in aboriginal languages often praised colleagues' good ears and complained about bad ones. Jones's department drilled its students with all kinds of natural and unnatural sounds to make sure that they could differentiate one sound from another as accurately as possible. The institutes of phonetics and language science in Paris and Hamburg likewise emphasized the training of ears.

<sup>87</sup> Pugach, *Africa in Translation*, 117–18.

<sup>88</sup> Giulio Panconcelli-Calzia, 'Mitteilung über das erste Arbeitsjahr', *Medizinisch-pädagogische Monatsschrift für die gesammte Sprachheilkunde*, 21 (1911), 2.

American language scholars, when doing their fieldwork, relied on their ears and transcription alone.<sup>89</sup> They went into the field in part because American Indian reservations, in comparison with Africa, were closer by and easier to access, and in part because the Boasian school took language as an integral part of the study of aboriginal life that could not be observed in isolation from its social and natural habitat. They did not take phonographs or kymographs with them in the 1920s and '30s, as they considered the equipment 'inferior to the human ear'.<sup>90</sup> Without recording devices, they picked up sounds with their ears and transcribed them with their hands, right in the field.

French and German scholars took different positions on recording or fieldwork. Brunot took recording trips across France as early as the 1910s. It was a time when French society was enthusiastic about recording technology and about the nation's collection of voices, folklore, and songs. Electricity and material supplies were closer at hand in French cities or even in the countryside than on Indian reservations. Meinhof and his Africanist colleagues accorded little value to fieldwork, preferring to work in the sterilized laboratory. This choice was reflected in the training of junior scholars at their respective institutions.

Laboratory analysis of sounds and its graphic presentation developed along with auditory methods. Experimental phoneticians analyzed sounds with mechanical instruments in the laboratory and identified them with the images of voice organs or kymographs. They used graphic presentation to compensate for or even supersede the auditory approach, as graphics were accessible to people both with and without gifted ears and available for repeated and close analysis. Graphics also promised reliability and precision.

Auditory and graphic analyses coexisted to a significant extent, though individual phoneticians might have favored one over the other. Though Jones's works, such as his first book, *Outline of English Phonetics*, included both approaches, he relied less on experimentation for his own research, leaving it rather to Stephen Jones. Likewise, although Meinhof supported the laboratory of phonetics, he let his assistant Calzia run the operations. An important reason was that experimental phoneticians also required a different gift or specialty. Instead of a good ear, Rousselot, Stephen Jones, and Calzia all had good command of anatomy, acoustics, and machinery, expertise that many colleagues in applied phonetics lacked.

<sup>89</sup> Bloomfield had studied Tagalog, a Philippine language, with a speaker who studied in the United States before he began working American Indian languages.

<sup>90</sup> Falk, *Women, Language and Linguistics*, 117.

Despite the different choices, the auditory, graphic, and fieldwork approaches signaled significant drifts away from the traditional approach to language studies by studying letters, as was previously the terrain of philology. In Britain, France, and Germany, drifts towards phonetics were clear, as these countries gave the discipline firm institutional footing—departments, institutes, and professorships—in the 1920s or earlier. Britain hosted two departments of phonetics (UCL and SOAS). France supported institutes of phonetics at Grenoble, Nancy, and Paris. Germany founded institutes of phonetics at Hamburg (1919) and Bonn (1927).<sup>91</sup>

After this survey, we are in a better position to answer Turner's question, namely, whether the new methods of training gave rise to a new discipline. Our observations agree with Turner's. Training methods alone did not produce a new discipline; it depended on many other factors. The prosperity of phonetics in Britain, France, and Germany first derived from the soaring need for the teaching of national and foreign languages. Then it benefited from the colonial interest in the study of African (or Asian) languages and in the teaching of European languages to colonial subjects. Phonetics also received nationalist support in the preservation of national languages (including dialects) and folk songs, and from the need for standardization of pronunciation in mass media productions like radio. New technologies, such as the phonogram, also created objects that warranted curation and analysis by phoneticians. Social, political, cultural, and technological reasons all contributed to the success of phonetics. Auditory training or phonetic experimentation alone was not sufficient to make the discipline of phonetics (or linguistics) possible, though it certainly reinforced the disciplinary identity to the junior scholars who received such training.

Women began to rise in language studies in the first half of the twentieth century, although they were constrained by the academic structure and social prejudice. As seen above, Jones employed more women in his department than men in the 1920s and '30s, thanks to his trust in women's ability. It was a different matter to project women into positions outside his department. When a spinoff department was created at the SOAS in 1927, it was Lloyd James, rather than his department senior Armstrong or Ward, who was proposed and accepted as its leader. Ward moved over to Lloyd James's department after the latter had become a professor. She received a professorship only in the 1940s. In contrast to Jones's support of women scholars in his department, Sapir is said to have not been very kind

<sup>91</sup> K. Kohler, 'Three Trends in Phonetics: The Development of the Discipline in Germany since the Nineteenth Century', in R. E. Asher and E. A. Henderson (eds.), *Towards a History of Phonetics* (Edinburgh, 1981), 174.

to women students and scholars.<sup>92</sup> In the United States, Haas waited until 1948 to receive a faculty position at Berkeley, thanks to her work on Thai. Vidon-Varney and Pernot were employed as assistants at the Institute of Phonetics at Paris in the 1920s and early '30s. Only after immigrating to the United States did they find faculty positions, teaching their mother tongue in women's or coeducational colleges. In Germany, von Tiling gave up her career for her husband's.

This chapter compares four institutions on two continents and studies scholarly migration because language studies were transcontinental, even global, during this period. Study tours within Europe continued since the earliest days of the universities, while trans-Atlantic tours accelerated in the second half of the nineteenth century. Bloomfield learned the latest language studies in Germany, reflected in his *Introduction to the Study of Language* (1914). Starting in the late nineteenth century, students arrived in Europe or the United States for undergraduate or research education from Asia, Africa, and elsewhere. Li and Liu were among the earliest Chinese examples. South African students, Eiseln and van Warmelo for example, went to Hamburg, even though they were not African aboriginals. This theme is pursued at length in the following chapters in this volume.

#### *Academia Sinica, Taiwan*

<sup>92</sup> Such as Reichard, Ruth Benedict, Margaret Mead, and Elsie Clews Parsons. See Falk, *Women, Language and Linguistics*, 112–15.