

FORCED MIGRATION AND SCIENTIFIC CHANGE AFTER 1933: A NEW APPROACH¹

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Introduction

The so-called "Law for the Reconstitution of the Professional Civil Service" of April 7, 1933, which authorized the release or premature retirement from government service of persons who were not of "Aryan" descent or who were associated with groups considered politically undesirable in the new German state, was only the beginning of a massive, forced exodus mainly of Jewish scholars and scientists from Nazi Germany, an emigration unprecedented in the modern history of academic life.² Compared with the total of more than half a million refugees from Germany alone, the fates of a few thousand academics and research scientists may seem of modest concern, but not when we remember how innovative some of these scholars and scientists were or became. Nonetheless, skeptical voices have been raised, asking whether these innovations were indeed the results of emigration, or whether they might have occurred in any case. Did that "exodus of reason" in fact lead to significant scientific change, and if so, how should that change be characterized?

In recent years, younger researchers from Germany and Austria, working alongside of or in collaboration with American, British, and Israeli scholars, have cast their nets more widely than before, going beyond the earlier focus on literary and political exiles and more prominent scientists and scholars to consider the careers and achievements of emigre academics and professionals in more detail.³ One result is that a more differentiated, in some respects more modest, picture has emerged; although earlier global formulations such as Auszug des Geistes persist, it has become more difficult to be satisfied with them. The fascination with the brilliant achievements of more prominent emigres, such as Erwin Schrödinger, Lise Meitner,

Paul Lazarsfeld, Max Horkheimer, Theodor Adorno, Sigmund and Anna Freud, Hannah Arendt or Leo Strauss, continues, with good reason. In addition to pathbreaking scientific innovations, these and other emigres as well have given us some of the most profound and complex accounts of the cultural breaks and ironic reconstructions characteristic of modern life, as they lived through them. However, exclusive emphasis on prestigious innovators seems problematic; interesting though they may be as personalities, important as their work has been, it seems inappropriate to take them pars pro toto, to make them symbols for „the emigre or exile experience“ and thus divert attention from the lives and work of their many less prominent colleagues.

In keeping with this broader awareness of cultural breakage and reconstruction, there has been a turn in recent years from assessing the products or contributions of the emigres to the processes which produced them. As a result, a new view has emerged that has taken a step away from a discourse of loss and gain, and towards a closer examination of the dynamics of scientific, social and cultural change--a view, indeed, that regards change rather than continuity as the expected norm. The literature that could be regarded as contributing to this new perspective is enormous.⁴ I will attempt to summarize its results here in the form of five thesis statements.⁵ These are derived primarily from work on natural and social scientists, but I believe that the implications can be extended to other fields as well.

Thesis 1: The forced migration of Jewish and socialist scientists and scholars was a well understood by-product of broader Nazi policies, in particular the persecution of Jews and Socialists. Its effects on the personell structure of German-speaking universities and scientific disciplines therefore varied according to the respective numbers of scholars and scientists in these institutions who were defined by the Nazis as ‘Jews’.

A single statistic should suffice to make clear what I mean by this statement. In the autumn of 1934, officials of the newly-created Reich Ministry for Education and Science prepared a list of persons dismissed or forced to retire from higher education institutions in Germany as a result of the Nazi civil service law. The list includes 614 university teachers; of these, 190

were full or tenured associate professors, and 424 non-tenured associate professors and Privatdozenten. Already at this early stage, the uneven distribution pattern of dismissals is obvious. Only three universities, Berlin, Frankfurt, and Breslau, account for fully forty per cent of the total (136, 69, and 43, respectively), while the universities of Rostock and Tübingen have as few as two each, and Erlangen only one.⁶ The Nazi takeover of Austria in 1938 led to an even greater number of dismissals in a far briefer period, because all existing anti-Jewish measures, including the Civil Service law and the Nuremberg laws, were executed at once. In the University of Vienna alone a total of 82 professors (37 per cent) and 233 Dozenten (49 per cent) lost their positions between 1938 and 1945; most were dismissed between March and October 1938.⁷ Yet here, too, the impact was vastly greater in Vienna than in Graz or Innsbruck, and some faculties, particularly medicine, were much harder hit than others, such as theology or law.

The impact on particular disciplines varied widely in Germany as well. Non-medical biology appears to be on the low end among the natural sciences, with circa 13 per cent (45 of 337 persons surveyed) dismissed on racist or more narrowly political grounds and 10 per cent (34) emigres.⁸ [Chemie aus Deichmann – high end?] Of a total of 325 physicists in Germany who had earned the right to teach at a university, 50, or 15.4 per cent, emigrated after 1933.⁹ This corresponds to the most conservative estimate currently available of the proportion of all emigre scientists and scholars. More interesting however, is the fact that the fifty emigre physicists came from only fifteen institutions, at which 212, or 65 per cent of university physicists taught; the other twenty-one, generally smaller, institutions had no emigre physicists at all. The larger, generally more innovative, institutes were thus also the hardest hit. When we realize concretely what is meant here--nearly the entire membership of the famous Göttingen institutes of physics and mathematics, for example--then we must acknowledge that the qualitative dimensions of loss were as significant in some disciplines as the quantitative. Data for psychology tell much the same story. Of the 308 members of the German Society for Psychology who lived or taught in German-speaking countries, 45 (14.6 per cent), emigrated; among them, however, were the directors of four of the five largest and internationally best-known psychological institutes and 22 academics ranked associate

professor or higher.¹⁰ Studies of the dismissal and emigration of medical scientists from Berlin present a more differentiated picture, from complete destruction in the case of Magnus Hirschfeld's Institute for Sexual Research to nearly complete continuity in university and extra-academic institutes concerned with public health and population policy.¹¹

Nazism's racist policies thus left noticeable, in places considerable quantitative gaps in Germany's scientific institutions, but the qualitative losses were often still more significant. Not for nothing does Alan Beyerchen speak, in a deliberately ironic reference to Martin Heidegger's inaugural address as Rector in Freiburg, of the "self-decapitation" (Selbstenthauptung) of German culture, rather than Heidegger's proclaimed "self fulfillment" (Selbstbehauptung) of the German university.¹² And yet, that is not the whole story.

One can certainly view these statistics as losses to be mourned, but these numbers are also reasonably clear indicators of the uneven distribution of Jewish and/or socialist academics in German-speaking universities and disciplines. Why people later defined by the Nazis as *Nichtarier* were not equally represented in all these institutions, is an important question that I cannot go into here.¹³ Nonetheless, it should be clear that often used global formulations such as *Vertreibung der Vernunft*, *Auszug des Geistes*, or „Exodus of Modernity“ need to be used with some caution. Such formulations may have their uses, but they make it difficult to ask what kinds of modern science not only survived but prospered under Nazism. Successors were found often enough for dismissed academics who emigrated; and, as will be shown below, the science that replaced their work cannot be dismissed simply as Nazified ideology disguised as science - though there was plenty of that.

It is surely appropriate, however, to speak of loss when the emigres' personal experiences are in question. They lost not only their livelihoods, but personal connections to their families, their language and not least their culture. These were, after all, the most assimilated Jews in Europe, for many of whom the experience of dismissal and of being labelled and persecuted as *Nichtarier*, i.e. as foreigners, came as an unbelievable shock.¹⁴ These scholars and scientists were persecuted on the basis of extrinsically ascribed, not intrinsically accepted identities--that is, on the basis of a logic that at best only the politically aware among them could even begin to understand. This is what distinguishes the forced migration of the Nazi

era from other cases of political persecution, or the massive international circulation of trained professionals that has become so prominent recently.

Thesis 2: It is a fundamental mistake to assume that the later achievements by emigres in their new places of residence were just precisely what was „lost“ to „German“ or German-speaking science and scholarship.

Such an assumption lies behind the frequent tendency to list the names of emigre Nobel Prize winners *and also future Nobel Prize winners*, as though these outstanding scientists would have produced their prize-winning achievements if the Nazis had not driven them out. Such simple (dare I say: simple-minded?) calculations of loss and gain presuppose a static view of science and of culture, as though the emigres brought with them finished bits of knowledge, which they then inserted like building-stones into already established cultural constructs elsewhere.

This error can only be reinforced by the understandable but quite misleading tendency to ask only whether emigres continued their previous research in their new locations, and to mourn the breakup of scientific schools or other research groups. This way of thinking is an artefact of German and Austrian academic life, which is still organized much more hierarchically than in the English-speaking world. As a result, the „school“ led by an all-powerful *Ordinarius* still seems to be the ultimate degree of institutionalisation. Proceeding on the basis of such assumptions may be understandable, but doing so without further reflection assumes without proof that such research programs or groupings would necessarily have remained in place or continued working as before had their members not been forced to leave their homelands. It also ignores the fact that forced migration made possible careers that could not have happened in the then-smaller, more restrictive university and science systems of Central Europe, and the possibility that the pressure to respond to new circumstances may have led to innovations that might not have occurred in the same way otherwise.

Also related to the discourse of gain and loss, and equally questionable, is the widely-held assumption that natural scientific knowledge is more "transferable" than the supposedly more

language and culture-dependent knowledge of the social sciences and the humanities.¹⁵ Such claims, too, need to be examined, rather than assumed. In any case, such assumptions are not well suited to help us understand or even recognize similarities in transfer processes, or in the generation of new knowledge, in the natural and the social sciences. Moreover, as biochemist Erwin Chargaff writes in his autobiography, even the modes of thought and practice of the natural sciences are not transferable without limit, for these, too, "live in the womb of a particular language and civilization."¹⁶ Simply defining scientific knowledge per se as international closes off consideration of this point before it can even begin. Chargaff's remark suggests that styles of thinking about and experimenting on or with nature are not independent of the cultural contexts of their creation. Recent work on research and theoretical preferences in Europe and America in the physical and biological sciences supports the claim that there may, indeed, be national or even local styles in science, the conversion of which into internationally understood "science" or their transfer to other cultural settings is by no means easy or simple.¹⁷ Paul Hoch and Jennifer Platt have suggested that forced migration actually accelerated what they term "the denationalization of science."¹⁸

Thesis 3: It is insufficient to present the Wissenschaftsemigration after 1933 as a transfer of already existing knowledge.¹⁹

A "products" oriented perspective has a certain historical justification in the vocabulary of the time. Even Alvin Johnson, then president of the New School for Social Research, founder of the so-called "University in Exile" and a leading advocate of rescue for emigre scholars, had no qualms about calling them "Hitler's gift to American culture." Another prominent academic reportedly put it even more directly when he said, "Hitler shakes the tree, and I gather the apples."²⁰ Today, however, it seems problematic to speak of the emigres and their science only in such terms, continuing to treat them or their research achievements now and without irony as a sort of human or intellectual capital, or as prestige objects to improve--or damage--the images of particular nations.

Neither the sciences themselves nor the societies and cultures in which they are practised are closed systems; rather, they are dynamic, open systems. The rightly celebrated achievements of the emigres are thus not only, and indeed, I would suggest, not even mainly, continuations of earlier work. That is the primary reason to take a process rather a products-oriented approach to this topic – to focus not only on the emigres' contributions, but also and primarily on the processes and the sociocultural and biographical circumstances that made them possible.

Needed to achieve this are not only more comprehensive overviews of individual disciplines, but also closer analyses of scientific continuity and change in their cognitive and social dimensions, in particular closer analyses of individuals and research groups going beyond the well-known cases such as that of the Frankfurt School.

Thesis 4: From the viewpoint of social history the emigration of scientists and scholars after 1933 can be understood as a spectacular case of forced international elite circulation. But that circulation did not happen automatically. Before we can consider scientific change proper we must therefore ask who got the opportunity to continue scientific work, and thus at least potentially to participate in scientific change, and why.

Significant in this context is the presence or absence of institutional, economic and social support available for science and scholarship in the countries to which the emigres went. Some of the so-called „receiving countries“, such as Turkey, Palestine and the Latin American nations, were severely lacking in such support; in Turkey, emigres were consciously recruited in an effort to build up the missing infrastructure. Studies of emigre scientists and professionals in these countries amply document the difficulties they faced, and also the pioneer spirit many showed in the face of such adversities.²¹

For those emigres who received positions or stipends in the United States and, to a lesser extent, in Britain, it is important to emphasise and clarify the mediating roles of the many aid organisations, disciplinary and multidisciplinary as well as humanitarian in character.

Traditional accounts of this subject, for example of the Society for the Protection of Science

and Learning or the Emergency Committee in Aid of Displaced Foreign Scholars, understandably stress the humanitarian impulse to rescue persons in distress.²² Such humanitarian motives were undoubtedly present. As recent research indicates, however, political and economic considerations were equally prominent. Important in this respect were two seemingly opposed but ultimately reconcilable impulses. The effects of the Depression and widespread fears of unemployment and competition for scarce resources among scientists and professionals in the host countries clearly worked against wholesale importation of academics or professionals, and encouraged careful selection among them. On the other hand, the desire of some influential academics as well as foundation and university administrators to grasp the opportunity of enriching their own disciplines or institutions by acquiring the emigre scholars judged to be best by their colleagues reinforced the impulse toward selectivity.²³

A closely related pattern appears in the work of the many aid committees organized within individual disciplines, for example in mathematics, psychology and psychoanalysis. In all of these cases humanitarian aims competed, not always on equal terms, with institutional, disciplinary and professional politics. In the case of psychoanalysis, for example, Ernest Jones in England and Lawrence Kubie in New York secured visas, affidavits and other papers for dozens of colleagues, but functioned simultaneously as selectors for the immigration authorities and tried to persuade emigres once they arrived to take up practice in the provinces in order to spread the good word and reduce competition in the metropolises.²⁴ Similar selectivity is evident in the ways in which emigres were employed in support of agenda setting within and across disciplines. For example, Finn Aaserud has shown how physicist Nils Bohr worked with the Rockefeller Foundation and other institutions not only to find work for outstanding emigres, but also to support particular research programmes, thus contributing to the emergence of molecular biology as well as advancing nuclear physics research.²⁵

Such patterns point to selective, even pre-selective, effects not only of influential individuals, but also of local scientific and cultural milieux, which could have decisive impacts on emigres' futures. Social-historical studies have made a start toward more careful examination of such impacts by employing acculturation as an organizing concept rather than

assimilation.²⁶ The issues that can be considered under this heading are many. Factors such as age and gender obviously play important roles, but so do the quite different levels of willingness among the emigres to adapt to the language and behavioural rules of the receiving countries.

At least as important as these global factors, however, are issues that might be defined as matters of disciplinary acculturation, in particular the relative degree of internationalisation of the styles of thought and practice in the different fields of science and scholarship involved. It is often assumed without further examination that scholars in the supposedly more language- and culture-bounded humanities should be considered, like writers and politicians, as true exiles in the generally understood sense, while the supposedly more easily transferrable skills of natural scientists and engineers (and social scientists, in some accounts) place them in the category of emigrants, even though their decision to leave their homelands was plainly not entirely voluntary.²⁷ Surprisingly enough, I am aware of no attempt to examine or test this assumption systematically, that is beyond individual case studies. Against such often stereotypical sounding distinctions it seems important to note three things:

First, the shift from exile to emigrant occurred at different times in emigres' lives; it appears to be at least as closely related to individual attitudes as it is to disciplinary membership.

Second, internationality is not automatic even in the natural sciences, but was and remains a historical product; national and even local differences in styles of thinking and working continue to exist even in the most internationalised fields.

Third, well established international networks existed in many humanities and social sciences, for example in classics, modern languages and literatures, or psychology, before 1933. It is therefore not justified to assume in advance that there exist some sort of linguistic or cultural essences that make knowledge and practices more easily transferred in one kind of discipline than in others.

Thus, discipline membership could be an anchor of stability in the personal and career crises that befell many emigres, but only if the disciplines in question had achieved a certain level of internationalisation.

But even at the level of the discipline as subculture the personal cannot be separated from the social. Was disciplinary acceptance a means to acculturation for the emigres, or was acquiring membership in a culture a precondition for acceptance as a scientist or scholar in that setting? Studies of the Frankfurt School, the "University in Exile" at the New School for Social Research, and Paul Weindling's work on emigre medical scientists at Oxford indicate that local settings of varied kinds could offer supportive niches to scientists who differed from conventional norms in their countries of settlement.²⁸ Just as frequently, however, acquiring membership in the culture of a given country by adapting to the local academic habitus and/or the social standards of the educated elites was an important precondition for acceptance as a scientist or scholar.²⁹ Mastery of a local language may have been less important in this regard than the ability or willingness to refigure one's behavior. Emigres in Britain who were deemed insufficiently "suitable" in this respect were sometimes quite openly told that their chances would be better in America; and even those who stayed and succeeded as scientists often felt that they had never been fully accepted. In America, in contrast, acculturation was possible and even at times most successful through opposition to then-current cultural norms--for example by emphasizing the superior theoretical sophistication and broader outlook that a European education brought with it.³⁰

In spite of these complications I believe that it is possible to venture at least one positive but also ironic general statement about the social historical dimension of scientific change. We can, I think, speak of a "trick of reason" (*List der Vernunft*) in Hegel's sense, or, perhaps more precisely, a "trick of unreason" (*List der Unvernunft*); for precisely this political and human catastrophe created for many scientists and scholars unanticipated career opportunities and chances to work in new settings. Especially the large, decentralised university and research system in the USA offered emigres, despite the existence of Anti-Semitism and the obstacle course of pre-selection, better chances in the long run than they would ever have had in the smaller, more hierarchically structured systems of Germany or Austria. This was especially true for younger emigres, whose adaptability may have been greater in any case and whose styles of thought and practice tended to be more flexible; and it also appears to be especially true for those disciplines with international networks that were already in place

before 1933. Unfortunately this generalisation does not apply to everyone. Many did not succeed in emigrating at all; for women entry was possible in only a few disciplines and professions, many accepted under- or even unqualified work in order to feed their families.³¹ And many emigres learned to their discomfiture that disciplinary and other networks were not always aid agencies, but worked often enough as negative selectors. We still know far too little about those affected by adverse decisions.³²

Thesis 5: The changes in styles of scientific thought and practise resulting from the Wissenschaftsemigration are too varied to be reduced to a single formula. The best common denominator appears to be resource exchange, leading in the most spectacular cases to a synthesis of scientific cultures.

Ute Deichmann cites the work of embryologists Viktor Hamburger and Walter Holftreter as examples in which emigres managed to continue their earlier work and were rewarded for doing so.³³ The geneticist Richard Goldschmidt, who continued to work on environmental rather than strictly genetically determined changes in phenotype and insisted on the enzymatic character of the genetic material, is perhaps the best example of continuity that was not rewarded.³⁴ At the other end of the spectrum is the work of James Franck, whose change of field from theoretical physics to the biophysics of photosynthesis coincided with his emigration to the United States and was generously funded in America by the Rockefeller Foundation. This example shows that scientific change need not necessarily lead to innovation; Franck developed ever more complex models but ultimately failed to do justice to the complexity of this biological process with the conceptual tools at his disposal.³⁵

I would like here to emphasize two forms or types of scientific change. The first type involves a synthesis of cultures of scientific practice, that is of research styles and styles of thought, that might be called scientific change through de-localisation--playing on Clifford Geertz's concept of „local knowledge.“ Comparable terms already used in the literature are „de-nationalisation“ or „deprovincialisation.“³⁶ I prefer „de-localisation,“ because I want to turn attention away from the disputed concept of „national styles“ in science and towards a

level at which behavior plays a central role in scientific change, that of the scientific workplace--the laboratory, seminar, or university department. Central here, particularly though not only in laboratory science, is what emigre chemist and philosopher of science Michael Polanyi called "tacit knowledge"--the exchange not only of ideas but of skills and modes of working that are more easily learned by personal interaction than from the literature.³⁷ Taking up the recent trend in science studies toward "ethnomethodology" has led historians of science to consider more intensively such scientific practices and the cultural, or sub-cultural, beliefs and norms embodied in them. Paul Hoch pointed more than ten years ago to the central role of migration in the transmission and transformation of such practices.³⁸ Seen from this perspective, common conventions of scientific thought and practice only existed to the extent that a given discipline had already become internationalised.

More spectacular syntheses of scientific cultures (or cultures of scientific practice) in which emigres were prominently involved--examples that went far beyond the level of the laboratory or seminar--are the atomic bomb project and the creation of computer science and technology.³⁹ In these cases one can speak of a technologisation of basic research under wartime conditions. I refer here to a complex interaction of basic research, applied science and industrial research, in which basic research necessarily acquired a practical orientation, because new fundamental knowledge was needed in order to develop the desired weapons, ballistics and communications systems. Such innovations were not merely eclectic combinations of components, but mobilizations and reconfigurations of intellectual as well as personal resources with different cultural roots for new purposes. Because emigres were involved in all aspects of this process, it is doubtful whether the simple claim that the emigres brought primarily theoretical knowledge to the table, while the Americans and British contributed mainly apparatus and experimental skills to the mix, can be sustained.⁴⁰ Further analyses of such innovations will help to improve our understanding of intercultural science and technology transfer.

In the social sciences, the best known synthesis of culturally formed scientific research styles is The Authoritarian Personality study (1950), which was not merely an extension of the research agenda of the Frankfurt School. Rather, social theorist Theodor Adorno, the

academically and psychoanalytically trained Vienna psychologist Else Frenkel-Brunswik and the test orientierted and statistically trained American psychologists R. Nevitt Sanford and Daniel Levinson collaborated intensively on the project, producing a synthesis that none of them could have predicted in advance.⁴¹ This example points to a type of scientific change that is central to our discussion. I have called it scientific change through reflexivity, or: learning from one's own biography.⁴² The formulation refers to changes in both scientific topic choice and styles of scientific or professional practice resulting from conscious or subconscious reflexion on the emigres' own expexperiences.

Here there is little doubt that there was a causal connection between scientific change and the events the began in 1933. For many of these scientists and scholars did not begin to identify themselves as Jews or to study topics such as Anti-Semitism until they were literally forced to confront them by world history. The Austrian social psychologist Marie Jahoda formulates this were her usual clarity: „Für mich ist mein Judentum erst mit Hitler eine wirkliche Identität geworden“.⁴³ Numerous examples of this process have been analysed, from the Authoritarian Personality study just mentioned to the work of Kurt Lewin with American psychologists on 'democratic' and 'authoritarian' leadership in childrens' play gourps to the profound analyses of Hannah Arendt and Franz Neumann on the origins and of totalitarianism and the structure of the Nazi state, respectively.⁴⁴

But naming this phenomenon does not yet give us a sustainable analysis of how such processes worked in detail. In the cases studied thus far it appears to be the case that emigres trying to make scientific use of their own biographies nonetheless required and received the cooperation of researchers and funding institutions in their new countries, partners who had at times rather different interests and research styles of their own. Thus the two kinds of scientific change I have tried to emphasize here turn out not to be entirely distinct from one another. Scientific change through reflexivity becomes a social process with only partly biographical roots, in which emigres combined methodological and conceptual resources from their past work with tools, funding and collaborators from their new settings.

Conclusions

I would like to summarize this discussion in a preliminary way as follows:

1. The extent to which it is justified to speak of a causal relationship between forced migration and scientific change remains disputed. Klaus Fischer, for example, has argued that such a causal relationship cannot be established, because the scientific changes involved, such as the emergence of „big science“ or the creation of molecular biology, had already begun before 1933 and thus would probably have continued whether the Nazis came to power or not.⁴⁵

Fischer is correct to point out that there is indeed no necessary causal relationship between political upheavals and scientific change. The issue, however, is therefore not whether or not scientific changes occur as a result of radical political changes, but rather the timing and the specific characteristics of the scientific developments that did take place. Neither is comprehensible in this case without the forced migration undoubtedly caused by the Nazi seizure of power. Perhaps this level of explanation will suffice at least for historians. A causal explanation of the strictness that philosophers appear to demand is not generally possible in historical scholarship in any case.

2. Whether and how scientific change can be attributed to forced migration depends in large part on what was or has been defined as science in the first place. Although the full range and variety of continuity and change is most visible in overviews or comparisons of individual disciplines, the processes of change themselves can often be followed in detail, or even detected, only at levels below that of the discipline--in single topic areas, in interdisciplinary research groups, and even in the biographies of individual scientists.

3. Though I have concentrated here on the natural and social sciences, I do not believe that it is either necessary or justified to presuppose essentialistic distinctions between these fields and the humanities. The kinds of changes I have discussed took place in all types of disciplines. Though I am very aware that emigre writers and some humanists often mourned the loss of their culture, it seems appropriate to avoid any mystification of language as a marker of cultural identity. The linguistic or other resources the emigres brought with them into exile may have varied in importance, but scientific and scholarly change that did occur

can nonetheless be described in all cases as a refiguration of resource constellations.

Regarding language is one source resource among others may help to bridge the gap between the sciences and the humanities and to avoid the disciplinary essentialisms that have plagued research in this area until now.

4. Last but not least: scientific changes following forced migration after 1933 were processes with results that none of the actors involved could have predicted at the outset. The behavior of those involved in such situations can therefore be regarded among other things as an answer to the reorientation problem faced by both scientists and political actors in times of radical political upheaval.

Notes

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- ¹ The original version of this paper was presented at a conference on „Intellectual Migration and Cultural Transformation: The Movement of Ideas from German-Speaking Europe to the Anglo-Saxon World,“ Centre for German-Jewish Studies, University of Sussex, 25 September 2000. Extended version published in: E. Timms & J. Hughes (eds.), Intellectual Migration and Cultural Transformation: Refugees from National Socialism in the English-Speaking World (Vienna, 2003), pp. 241-263.
- ² Contemporary commentaries evoked events such as the flight of scholars from Constantinople after its conquest by the Ottomans in 1453. See, e.g., Hans Speier, The Social Condition of the Intellectual Exile, in: idem., Social Order and the Risks of War (New York, 1952), pp. 86-94. First published in 1937.
- ³ On emigre professionals, see, e.g., Wolfgang Mock, Technische Intelligenz im Exil. Vertreibung und Emigration deutsch-sprachiger Ingenieure nach Großbritannien 1933-1945 (Düsseldorf, 1986); Michael Hubenstorf, „Österreichische Ärzteemigration,“ in Friedrich Stadler (ed.), Vertriebene Vernunft I (Vienna, 1986), pp. 339-415; Hans-Peter Kröner, Die Emigration deutschsprachiger Mediziner im Nationalsozialismus, Berichte zur Wissenschaftsgeschichte, 12 (1989), Sonderheft; Erwin C. Stiefel & Frank Mecklenburg, Deutsche Juristen im amerikanischen Exil 1933-1950 (Tübingen, 1991); Uwe H. Peters, Psychiatrie im Exil. Die Emigration der dynamischen Psychiatrie aus Deutschland 1933-1939 (Düsseldorf, 1992); the essays on professionals in Werner E. Mosse (ed.), Second Chance: Two Centuries of German-Speaking Jews in the United Kingdom (Tübingen, 1991); Atina Grossmann, German Women Doctors from Berlin to New York: Maternity and Modernity in Weimar and in Exile, Feminist Studies, 19 (1993), 65-88; and the essays on women professionals in Sybille Quack and Daniel S. Mattern (eds.), Between Sorrow and Strength: Women Refugees of the Nazi Period (Cambridge, England & New York, 1995). Though the situations of these emigres had much in common with those of scientists and scholars, only cases in which sciences and professions interacted or overlapped, such as medical science, psychology, psychoanalysis and pedagogy, will be considered here.

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- ⁴ See the literature cited in: Herbert A. Strauss, et al. (eds.), Die Emigration der Wissenschaften nach 1933: Disziplingeschichtliche Studien (Munich, 1991); Mitchell G. Ash & Alfons Söllner, Introduction: Forced Migration and Scientific Change, in: idem (eds.), Forced Migration and Scientific Change: Emigre German-Speaking Scientists and Scholars after 1933 (Cambridge, England & New York, 1996); Claus-Dieter Krohn, et al. (eds.), Handbuch der deutschsprachigen Emigration 1933-1945 (Darmstadt, 1998), Teil IV.
- ⁵ For a more extensive statement see Mitchell G. Ash, Emigration und Wissenschaftswandel als Folgen der nationalsozialistischen Wissenschaftspolitik, in: Doris Kaufmann (ed.), Geschichte der Kaiser-Wilhelm-Gesellschaft im Nationalsozialismus. Bestandsaufnahme und Perspektiven der Forschung (Göttingen, 2000), pp.
- ⁶ Liste der auf Grund des Gesetzes zur Wiederherstellung des Berufsbeamtentums verabschiedeten Professoren und Privatdozenten (für das Auswärtige Amt), 11. Dezember 1934. Politisches Archiv des Auswärtigen Amtes, Bonn. Cf. Sybille Gerstengarbe, Die erste Entlassungswelle von Hochschullehrern deutscher Hochschulen aufgrund des Gesetzes zur Wiederherstellung des Berufsbeamtentums vom 7.7.1933, Berichte zur Wissenschaftsgeschichte, 17 (1994), 17-40. For further information on dismissals at individual universities, see: Hans-Joachim Dahms, Verluste durch Emigration: Die Auswirkungen der nationalsozialistischen 'Säuberungen' an der Universität Göttingen, Exilforschung, 4 (1986), pp. 165ff.; Rudolf Schottlaender, Verfolgte Berliner Wissenschaft. Ein Gedenkwerk (Berlin, 1988); Dorothee Mussnug, Die vertriebenen Heidelberger Dozenten: Zur Geschichte der Ruprecht-Karls-Universität nach 1933 (Heidelberg, 1988); Eckart Krause (ed.), Hochschulalltag im 'Dritten Reich'. Die Hamburger Universität 1933-1945 (Berlin, 1991), Vol. 1.
- ⁷ Kurt Mühlberger, Vertriebene Intelligenz 1938. Der Verlust geistiger und menschlicher Potenz an der Universität Wien von 1938 bis 1945, 2., expanded ed. (Vienna, 1993), p. 9.
- ⁸ Ute Deichmann, Biologists under Hitler, pp. 25 ff.
- ⁹ Klaus Fischer, Die Emigration deutschsprachiger Physiker nach 1933: Strukturen und Wirkungen, in Strauss, et al. (eds.), Die Emigration der Wissenschaften, pp. 28-29.

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- ¹⁰ See Mitchell G. Ash, Disziplinentwicklung und Wissenschaftstransfer--deutschsprachige Psychologen in der Emigration, Berichte zur Wissenschaftsgeschichte, 7 (1984), pp. 208 f.
- ¹¹ See the essays by Rolf Winau, Michael Hubenstorf and Sigrid Stöckel in Wolfram Fischer et al. (eds.), Exodus von Wissenschaften aus Berlin (Berlin, 1994). Cf. Jonathan Harwood, German Science and Technology under National Socialism, Perspectives on Science, 5 (1997), 128-151, esp. p. 140.
- ¹² Alan D. Beyerchen, Anti-Intellectualism and the Cultural Decapitation of Germany under the Nazis, in Jackman and Borden (eds.), The Muses Flee Hitler: Cultural Transfer and Adaptation, 1930-1945 (Washington, D.C., 1983), pp. 29-44.
- ¹³ Perhaps one brief remark on this issue may be permitted. If we wish to avoid the danger of making Nazi-era denunciations of entire disciplines as „Jewish“ appear to be justified, we must use the tools of empirical social history rather than presupposing that Jewish scientists had some sort of mystical affinity for particular styles of thought. See, e.g., Shulamit Volkov, Soziale Ursachen des Erfolgs in der Wissenschaft. Juden im Kaiserreich, Historische Zeitschrift, 245 (1987), 315-342, repr. in: idem., Jüdisches Leben und Antisemitismus im 19. und 20. Jahrhundert (Munich, 1990), pp. 146-165; Notker Hammerstein, Antisemitismus und deutsche Universitäten 1871-1933 (Frankfurt a.M. & New York, 1995); Klaus Fischer, Jüdische Wissenschaftler in Weimar: Marginalität, Identität und Innovation, in: Wolfgang Benz, et al. (eds.), Jüdisches Leben in der Weimarer Republik (Tübingen, 1998).
- ¹⁴ As Curt Stern, then an assistant am Kaiser-Wilhelm-Institut für Biologie, wrote to Max Hartmann on 16. May 1933: „Es fällt meiner Frau und mir furchtbar schwer, uns äußerlich von Deutschland zu trennen. Sie wissen, daß ich mich stets als Deutscher gefühlt habe...“ Cited in Ute Deichmann, Biologen unter Hitler. Vertreibung, Karrieren, Forschung (Frankfurt a.M., 1992), p. 41. Stern sent copies of this letter to a number of his colleagues, thus making it a semi-public document.
- ¹⁵ Sven Papcke, Fragen an die Exilforschung heute, Exilforschung, 6 (1988), p. 19.
- ¹⁶ Erwin Chargaff, Das Feuer des Heraklit. Skizzen aus einem Leben vor der Natur (Munich, 1984), p. 89.

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- ¹⁷ On physics see Paul K. Hoch, The Reception of Central European Refugee Physicists of the 1930s: U.S.S.R., U.K., U.S.A., Annals of Science, 40 (1983), 217-246; Silvan Schweber, The Empiricist Temper Regnant: Theoretical Physics in the United States 1920-1950, Historical Studies in the Physical and Biological Sciences, 17 (1986), 55-98. On biology see Jonathan Harwood, National Styles in Science: Genetics in Germany and the United States between the World Wars, Isis, 78 (1987), 390-414; idem., Styles of Scientific Thought: The German Genetics Community 1900-1933 (Chicago, 1993).
- ¹⁸ Paul K. Hoch & Jennifer Platt, Migration and the Denationalization of Science, in Elisabeth Crawford, et al. (eds.), Denationalizing Science (Amsterdam, 1993), pp. 133-152. H. Stuart Hughes advanced a similar thesis some years ago when he spoke of the "deprovincialization" of social thought in A Sea Change: The Migration of Social Thought (New York, 1976). I will say more about this under Thesis 4 below.
- ¹⁹ See, e.g., Strauss et al. (eds.), Die Emigration der Wissenschaften; Ash & Söllner (eds.), Forced Migration.
- ²⁰ Alvin Johnson, Pioneer's Progress: An Autobiography (New York, 1953); Walter S. Cook, New York University Institute of Fine Arts, quoted in W. McClay, Weimar in America, American Scholar (Winter 1985/86), p. 120.
- ²¹ See, e.g., Regine Erichsen, Die Emigration deutschsprachiger Naturwissenschaftler von 1933 bis 1945 in die Türkei in ihrem sozial- und wissenschaftshistorischen Wirkungszusammenhang, in Strauss, et al. (eds.), Die Emigration der Wissenschaften, pp. 73-104.
- ²² Norman Bentwich, The Rescue and Achievements of Refugee Scholars: The Story of Displaced Scholars and Scientists 1933-1952 (The Hague, 1953); Laura Fermi, Illustrious Immigrants: the Intellectual Migration from Europe, 1930/41, 2nd ed. (Chicago, 1971).
- ²³ Karen J. Greenberg, The Mentor Within: The German Refugee Scholars of the Nazi Period and Their American Context (Ph.D. dissertation, Yale University, 1987); Gerhard Hirschfeld, 'The Defense of Learning and Science ...' Der Academic Assistance Council und die wissenschaftliche Emigration aus Nazi-Deutschland, Exilforschung, 6 (1988), 28-43; idem., 'A High Tradition of Eagerness ...' - British Non-Jewish Organizations in

Support of Refugees, in Mosse, et al. (eds.), Second Chance, pp. 599-610. Other aid organizations with less elitist orientations, such as the American Friends' Service Committee, are less well researched.

- ²⁴ For examples, see Margaret S. Mahler, The Memoirs of Margaret S. Mahler, ed. Paul Stepansky (New York, 1987), p. 103; Mitchell G. Ash, Emigre Central European Jewish Psychologists and Psychoanalysts in Great Britain, in Mosse, et al., eds., Second Chance, esp. pp. 112 ff.; Edith Kurzweil, Psychoanalytic Science: From Oedipus to Culture, in Ash & Söllner (eds.), Forced Migration, pp. 139-155.
- ²⁵ Finn Aaserud, Redirecting Science: Niels Bohr, Philanthropy and the Rise of Nuclear Physics (Cambridge, 1990), esp. chaps. 3-5.
- ²⁶ For discussion of the acculturation concept, see Herbert A. Strauss, Jewish Emigration in the Nazi Period: Some Aspects of Acculturation, in Mosse, et al. (eds.), Second Chance, pp. 81-95.
- ²⁷ See Papcke, Fragen an die Exilforschung heute, esp. p. 17.
- ²⁸ Martin Jay, The Dialectical Imagination: A History of the Frankfurt School and the Institute of Social Research (Berkeley, 1973); Rolf Wiggershaus, Die Frankfurter Schule (Munich, 1986); Peter M. Rutkoff & William B. Scott, New School: A History of the New School for Social Research, 1919-1970 (New York, 1986); Paul J. Weindling, The Impact of Central European Medical Scientists on British Medicine: A case-study of Oxford, 1933-1945, in Ash & Söllner (eds.), Forced Migration, pp. 86-114.
- ²⁹ The contrasting cases of Erwin Schrödinger and the medical scientists who worked with Paul Florey in Oxford illustrate this point. Paul K. Hoch & Edward J. Yoxen, Schrödinger at Oxford: A Hypothetical national Cultural Sythesis which Failed, Annals of Science, 44 (1987), pp. Xxx-xxx; Weindling, The Impact of Central European Medical Scientists.
- ³⁰ Hirschfeld, 'The Defense of Learning and Science ...'; Karen J. Greenberg, Crossing the Boundary: German Refugee Scholars and the American Academic Tradition, in Ulrich Teichler and H. Wasser (eds.), German and American Universities. Mutual Influences - Past and Present (Kassel, 1992), pp. 67-80; Mitchell G. Ash, Emigre German-Speaking

Psychologists after 1933: The Cultural Coding of Scientific Practices, in: Ash & Söllner (eds.), Forced Migration, pp. 117-138.

³¹ See the papers in Quack (ed.), Between Sorrow and Strength.

³² For one such case, that of the biologist Victor Jollos, see Deichmann, Biologists under Hitler, pp. 19f. and Michael R. Dittrich, On the Mobility of Genes and Geneticists: The 'Americanization' of Richard Goldschmidt and Victor Jollos, Perspectives on Science, 4 (1996), 321-346, esp. p. 329. For the case of the psychologist Gustav Ichheiser, see Mitchell G. Ash, Österreichische Psychologen in der Emigration. Fragestellungen und Überblick, in: Friedrich Stadler (ed.), Vertriebene Vernunft II. Emigration und Exil österreichischer Wissenschaft (Vienna, 1988), esp. pp. 259 f.

³³ Deichmann describes such cases more fully in the American edition of her book: Biologists under Hitler, trans. Thomas Dunlap (Cambridge, Mass., 1996), esp. pp. 30 ff.

³⁴ See Deichmann, Biologen unter Hitler, p. 49. Dittrich, On the Mobility of Genes and Geneticists, argues that the negative reception of Goldschmidt's work resulted in part from his generalist orientation, which contrasted sharply with the atheoretical, data oriented approach of most American biologists.

³⁵ Alan D. Beyerchen, Emigration from Country and Discipline: The Journey of a German Physicist into American Photosynthesis Research, in: Ash & Söllner (eds.), Forced Migration, pp. 71-85.

³⁶ See Harwood, National Styles in Science and Styles of Scientific Thought; Hoch & Platt, Migration and the Denationalization of Science. For the thesis of deprovincialisation in social theory after 1933, see Hughes, A Sea Change.

³⁷ Michael Polanyi, Personal Knowledge (Chicago, 1950).

³⁸ Paul K. Hoch, Migration and the Generation of Scientific Ideas, Minerva, 25 (1987), 209-237; idem., Institutional versus Intellectual Migrations in the Nucleation of New Scientific Specialties, Studies in the History and Philosophy of Science, 18 (1987), 481-500. As early as 1937, Hans Speier described a range of such possibilities, from a relatively self-enclosed milieu (such as that of the Frankfurt School) to already-internationalized and institutionalized discursive realms (like that of theoretical physics), within which the

scientist or scholar simply changed location. See Hans Speier, *The Social Conditions of the Intellectual Exile*.

- ³⁹ There is no need to cite the enormous literature on the Manhattan Project here. On the role of emigres in computer science, see, e.g., Steve J. Heims, *John von Neumann and Norbert Wiener: From Mathematics to the Technologies of Life and Death* (Cambridge, Mass., 1981). On the radar projekt see Michael Eckert (Titel), in Kaufmann (ed.): *Geschichte der Kaiser-Wilhelm-Gesellschaft*, pp..
- ⁴⁰ Cf. Paul K. Hoch, *Migration and the Generation of Scientific Ideas*; Peter Galison & Bruce Hevly (eds.), *Big Science* (Stanford, 1992).
- ⁴¹ Theodor W. Adorno, et al., *The Authoritarian Personality* (New York, 1950); Wiggershaus, *Die Frankfurter Schule*, esp. pp.; Mitchell G. Ash, *Wissenschaftswandel durch Zwangsauswanderung. Kurt Lewin und Else Frenkel-Brunswik nach 1933*, *Tel Aviver Jahrbuch für Deutsche Geschichte*, 27 (1998), 251-272.
- ⁴² Ash, *Wissenschaftswandel durch Zwangsauswanderung*; idem., *Scientific Changes in Germany 1933, 1945 and 1990*, pp. ff.
- ⁴³ Marie Jahoda, *Für mich ist mein Judentum erst mit Hitler eine wirkliche Identität geworden*, *Ästhetik und Kommunikation*, 14/51 (1983), Heft 51, 71-89.
- ⁴⁴ On Lewin, see Mitchell G. Ash, *Cultural Contexts and Scientific Change in Psychology: Kurt Lewin in Iowa*, *American Psychologist*, 47 (1992), 198-207. For two further case studies see Edith Kurzweil, *Psychoanalytic Science: From Oedipus to Culture*, in Ash & Söllner (eds.), *Forced Migration*, pp. 139-155; Sven Papcke, 'Lernen aus der Barberei'. Zur Entwicklung der politischen Soziologie von Franz Leopold Neumann, in: idem., *Deutsche Soziologen im Exil: Gegenwartsdiagnose und Epochenkritik 1933-1945* (Frankfurt a.M., 1993), pp. 77-99.
- ⁴⁵ See Klaus Fischer, *Identification of Emigration-Induced Scientific Change*, in: Ash & Söllner (eds.), *Forced Migration*, pp. 23-47.