

In the Service of the Reich: Aspects of Copernicus and Galileo in Nazi Germany's Historiographical and Political Discourse

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Argument

Focus of this paper is on the historiographical fate of Nicholas Copernicus and Galileo Galilei in Nazi Germany. Both played interesting roles in Nazi propaganda and the legitimization of Nazi political goals. In the “Third Reich,” efforts to claim Copernicus as a German astronomer were closely linked to revisionist policies in Eastern Europe culminating in the war-time expansion. The example of Galileo’s condemnation by the Catholic Church in 1633 became a symbol of its unjustified opposition to new “scientific” results, namely Nazi racial theory. After Catholic opposition against Nazi racial theory had reached a peak in 1937, the Galileo affair was turned into an instrument of Nazi propaganda against the Catholic Church.

*Auch der Historiker steht in der Zeit, nicht über ihr.
Das Ewigkeitspostament hat er verloren.*

Siegfried Giedion

Introductory Remark

The study of the history of the sciences and the humanities in Nazi Germany has flourished in the last two decades.¹ Research has not, however, been equally intensive for all disciplines. While certain topics (the bomb project and the rocket) and individuals (Heidegger and Heisenberg) have been discussed intensively, other topics, such as the humanities’ contributions to the war effort (Kriegseinsatz der Geisteswissenschaften), have scarcely been touched upon. Whereas German general historians have begun to discuss their own discipline’s role in Nazi Germany (Schönwälder 1992; Aly 1997; Schöttler 1997; Fahlbusch 1999; Haar 2000) reaching

¹ There is no comprehensive overview. For recent surveys see Beyerchen 1992; Hentschel 1996; Hopper 1996; Harwood 1997; and Kaufmann 2000.

a public climax at the 1998 biennial conference of German historians in Frankfurt (Schulze/Oexle 1999), historians of science are far from it. It is not that there was nothing to say because of the comparatively low degree of professionalization and institutionalization of history of science in the Weimar Republic and the “Third Reich.” Rather, apart from well-known tendencies not to indulge in reflections on the history of one’s own discipline in the Nazi period, this is due to the widespread view that the history of science is not partisan to ideology.

To give a general characterization of a professional historian of science is problematic and especially so in the period under consideration. Given the fact that history of science as an academic discipline was scarcely established in German universities in the Weimar and Nazi period (Brocke 1995), it is hard to prescribe criteria to decide whether or not a certain individual should be considered a professional historian of science. The field was very heterogeneous. Many were torn between their scientific discipline and its historical study, earning their money as scientists and dedicating their spare time to serious historical study. Others only turned to history occasionally, often with the intention to historically legitimize current scientific positions or specific arguments. It is hard to narrow down *a priori* a set of defining conditions for the systematic historical investigation of the field of history of science in Weimar and Nazi Germany. Such an enterprise would have to start from scratch, setting out from prosopographical research. Within the realm of such a survey the development of history of science in Weimar and Nazi Germany would have to be studied in relation to its political and cultural environment in order to better understand the comportment of individual practitioners of the field. In this respect the self-fashioning of history of science as an academic discipline within a specific political climate is of special interest.

This paper does not furnish the detailed prosopographical study just hinted at. Rather it concentrates on some instances of politicization of history of science in the Nazi period. However, apart from being of interest in their own right, these examples illustrate that the systematic study of the discipline’s history including the boundary cases of semi- and non-professional historians might be a fruitful and worthwhile endeavor.

Views related to Nazi ideology found their way into publications dealing with the history of science quite frequently by the mid-thirties. The degree, however, varied from rather cautious references toward Nazi views to overt anti-Semitism. Whether these were due to opportunistic attitudes, to wholehearted Nazi convictions, or to positions in between is not the point in question here and could only be discussed on a case-by-case basis. Emphasis here is on the fact that elements of Nazi ideology made their way into historical accounts regardless of their authors’ standing in the academic world. Also it will be seen that the choice or mode of presentation of a historical topic was often determined by political factors.

At times the titles of papers or books already indicate what to expect. When the historian of mathematics Kurt Vogel published his very brief paper on “Mathematical

Achievements of the Semites in Antiquity and the Middle Ages” his position is clear from the outset. He didn’t see any:

Even though this overview has been restricted to the Semite achievements in mathematics in Antiquity and the Middle Ages, it is safe to say, that Jews have neither taken an important part in the advancement of the old mathematics nor in the birth of modern mathematics. . . . The reason for this lies in their lack of talent for great achievements in mathematics – and, by the way, in the arts.² (Vogel 1937, 92)

In other cases belief in German superiority – as such not a phenomenon of the Nazi period alone – could easily be made into a bow to the new times. In 1934 the historian of astronomy Ernst Zinner (1886–1970) published a biography of Kepler with the subtitle “The Great Leader and Man” (*Der grosse Führer und Mensch*). While the text is largely free of the new spirit, title and preface explicitly pay homage to it. In the preface Zinner explains that the German Kepler ranks way above his contemporaries and Galileo in particular. In his view Kepler would always stand as exemplary to the Germans because of “his fight for knowledge and his steadfastness in religious persecution.” Moreover, it was Kepler who had done more than Galileo to “bring the breakthrough of the new Copernican ideas to an end” (Zinner 1934, 5). This close link between Copernicus and Kepler was to become an important element in the conception of a scientific revolution largely if not exclusively due to German genius. The missing link in such a story was the question of the nationality of Copernicus: Polish or German.

“Back to the Reich”: Claiming Copernicus as German

During the war Zinner published a book on the genesis and diffusion of the Copernican theory (Zinner 1943). This was a “valuable contribution to Copernican studies in the twentieth century,” even though he systematically exaggerated German contributions to the history of science (Rosen 1945, 262; cf. Westman 1997). Toward the end of his book Zinner’s language clearly mirrors German military success in World War II:

The Copernican theory came into being in Germany and here it was completed by Kepler’s work. . . . The Copernican system is not just a general human invention that could have been found everywhere. Rather it is closely connected with those parts of

² “Wenn der hier gegebene Überblick über die semitischen Leistungen in der Mathematik sich auf Antike und das Mittelalter beschränkte, so kann doch gesagt werden, dass Juden an der Weiterbildung der alten und an der Geburt der modernen Mathematik (Algebra, Analytische Geometrie, Infinitesimalrechnung usw.) wesentlich nicht beteiligt waren. . . . Dass es nicht der Fall war, lag eben an der für grosse mathematische – wie übrigens auch künstlerische – Leistungen fehlenden Veranlagung”. For his evaluation of modern mathematics Vogel refers to Ludwig Bieberbach (Bieberbach 1934a, 1934b).

Europe where the Teutonic nations live and it is characteristic for the powers at work there, which to the present day transform the earth and intellectually conquer heaven and earth.³ (Zinner 1943, 403)

It is not only the Copernican system that is to be Germanized in Zinner's book, but Copernicus himself. In his review of October 1945 the American historian of astronomy Edward Rosen deplored "Zinner's aberration on the question of German nationality" and extensively discussed Zinner's treatment of Copernicus, complaining that "without so much as deigning to review the evidence, Zinner pronounces Copernicus a German. He does not take the trouble to explain what he understands that statement to mean in the ethical and political context of the fifteenth and sixteenth centuries, and whether it is anything more than a linguistic classification, applied to an author who did almost all his writing in Latin" (Rosen 1945, 262). This criticism is completely adequate. Rosen, however, does not mention that it did not only pertain to Zinner. Many historians of more or less scholarly merit had been busy getting Copernicus "back to the Reich."

Nicholas Copernicus (1473–1543) was born in Thorn (today: Toruń). Toruń had been founded by the Teutonic Order of Knights (Deutscher Orden) in 1231 and had been handed over to Poland in 1466 in the Peace of Toruń. When Poland was divided after the Napoleonic wars in 1815 Toruń fell to Prussia. In 1919, when Poland was resurrected as an independent state after World War I, Toruń became Polish again. During the hegemony of German culture in the Prussian part of Poland the new Copernican question emerged in the late nineteenth century: which nation did Copernicus belong to, Germany or Poland? During the 1920s and 1930s, the debate about this new Copernican question grew more and more into the realm of political controversies overshadowed by revisionist claims in Weimar Germany concerning the Treaty of Versailles.⁴ The eagerness of historians in the Nazi Period to integrate Copernicus into the German tradition reflects official political rhetoric. The German Copernicus symbolized the goal of German expansion to the East. This dream came true as a nightmare in World War II when Toruń – and Copernicus – became part of Grossdeutschland (Greater Germany). Copernicus was included in the hall of fame of German geniuses. German discussions of Copernicus in the Nazi period have to be seen against this background. These efforts culminated in 1937, when Copernicus was presented as one of seven Polish intellectual heroes at the Polish pavilion at the Paris World's Fair, and in 1943, when the quadricentennial of Copernicus' death was celebrated.

³ "Die copernicanische Lehre entstand in Deutschland und erfuhr hier ihre Vollendung durch Keplers Werk. . . . Das copernicanische Weltgebäude ist nicht eine allgemein menschliche Erfindung, die überall hätte gemacht werden können, sondern sie ist verknüpft mit dem Teil Europas, wo die germanischen Völker heimisch sind, und ist bezeichnend für die dort tätigen Kräfte, die bis zur Gegenwart die Erde umgestalten und Erde und Himmel geistig eroberten".

⁴ For a contemporary overview of the historiography see (Warschauer [1917/1925] 1967); cf. (Gingerich 1999, 39–44; Schleier 1975).

The New Copernican Question in Germany from 1933 to the Outbreak of World War II

For Alfred Rosenberg (1893–1946), whom Hitler put in charge of Nazi ideological education in 1934, Copernicus counted among the best German minds along with Kant and Goethe. In his *Mythus des 20 Jahrhunderts* (Myth of the Twentieth Century), which was printed million fold between 1930 and 1945, he only discussed the sciences in passing, but explicitly characterized their history as an internal German affair, a string of Teutonic developments and successes:

The sciences, too, depend on the blood. The whole of what we abstractly call ‘the sciences’ today is a product of Teutonic creative powers. The Nordic-Occidental concept of a sequence of events in the universe which follow a set pattern, and the investigation of the underlying laws is not only not a ‘concept as such’, which might have been found by any Mongolian, Syrian and African. . . . What we call ‘the sciences’ today is the very own creation of the Teutonic race. They are not just an accidental technical result, but the consequence of an unique form of inquiry into the universe. As Apollo is opposed to Dionysus, Copernicus, Kant and Goethe stand against Augustinus, Boniface VIII and Pius IX.⁵ (Rosenberg [1930] 1934, 120f)

This clear conception, that the history of the sciences is part of Teutonic history, implied the task to present the history of the sciences along these given lines and thereby to legitimize the idea of German racial and cultural superiority. The physicist and historian Rembert Ramsauer (1910–1955) had underlined the political importance of the history of science in his Ph.D. dissertation on Daniel Sennert. He detected a “deep political sense” in the history of science and emphasized its potential “contribution to the shaping of a truly political natural science” (Ramsauer 1935, VI). Similar goals were explicitly propagated in an article on the history of science in an official guide for the study of sciences and mathematics published by the Nazi student organization (Reichsstudentenführung) in 1943. The author, Fritz Kubach, a leading spokesman for the history of science, explained:

For us the history of German science holds a special place not only because it is concerned with the historical development of scientific research and knowledge of our own people, but because it deals with the history of the most important creative acts of

⁵ “Aber auch ‚die Wissenschaft‘ ist eine Folge des Blutes. Alles, was wir heute ganz abstrakt Wissenschaft nennen, ist ein Ergebnis der germanischen Schöpferkräfte. Dieser nordisch-abendländische Gedanke einer auf Gesetze zurückzuführenden Folge von Ereignissen im Weltall, die Erforschung dieser Gesetzlichkeit, ist nicht nur nicht ein ‚Idee an sich‘, auf die jeder Mongole, Syrier und Afrikaner auch verfallen müsste. . . . Das was wir heute ‚die Wissenschaft‘ nennen ist ureigenste germanische Rassenschöpfung, sie ist nicht irgendein technisches Ergebnis, sondern die Folge einer einzigartigen Form der Fragestellung an das Weltall. Wie Apollon dem Dionysos, so stehen Kopernikus, Kant, Goethe dem Augustinus, Bonifaz VIII., Pius IX. gegenüber”.

modern science in general. For essentially the sciences are a creation of the Nordic-Aryan peoples, and among them the German people indisputably has the biggest share in the development of the sciences.⁶ (Kubach 1943b, 89)

Kubach had already presented such ideas in the general introduction to the guide, emphasizing that it was “the deed and obligation of those who take up the study of the sciences and mathematics today, to hold the German leading position in the sciences and safeguard it for the future” (ibid., 6). But besides the great goal to turn the history of science into a part of German history, which Philipp Lenard had already pursued in his *Grosse Naturforscher* (Lenard 1929), occasions to put historiography of science in the service of National Socialism were scarce. The new Copernican question was one of the few obvious instances where history of science could serve the Nazi cause.

Up to 1937 with no Copernican anniversary at hand things were subdued, in particular as the Nazi Regime tried to put on a friendly facade before the Olympic games of 1936 in Berlin. Copernicus was taken to have been German and no conflict arose as long as nobody challenged this view.

The first big clash with the Polish about the nationality of Copernicus came in 1937 when Copernicus was presented as one of seven Polish intellectual heroes at the Polish pavilion at the Paris World's Fair (Gingerich 1999, 43). German published and scientific opinion cried out in rage under the common heading “Copernicus is German.” In a joint declaration the presidents of the Gesellschaft Deutscher Naturforscher und Ärzte, Professor Alfred Kühn, and the Deutsche Gesellschaft für Geschichte der Medizin, Naturwissenschaft und Technik, Professor Georg Lockemann, claimed Copernicus for Germany with explicit reference of “the Polish attempt to falsify history” at the World's Fair. Kühn and Lockemann underlined that Copernicus “is not only of purely German descent, but also holds an outstanding place in the historical development of German natural science, which led to the forming of the new conception of the world. . . . We staunchly protest against the renewed attempt of the Polish side to dispute Copernicus' place in German culture and align him with Polish culture” (Kühn and Lockemann 1937).⁷

⁶ “Die Geschichte der deutschen Naturwissenschaft nimmt dabei für uns nicht nur deshalb einen besonderen Platz ein, weil sie das geschichtliche Werden der naturwissenschaftlichen Forschung und Erkenntnis unseres eigenen Volkes zum Gegenstand hat, sondern weil sie sich mit der Geschichte der schöpferischen Vorgänge zur heutigen Naturwissenschaft überhaupt befasst. Denn die Naturwissenschaft ist im wesentlichen eine Schöpfung der nordisch-aryischen Völker, unter denen das deutsche Volk unbestreitbar den grössten Anteil an ihrer Entwicklung hat”.

⁷ “Darüber hinaus stellen wir ausdrücklich fest, dass Nikolaus Copernick, wie sein Name eigentlich lautet, nicht nur rein deutscher Abstammung ist, sondern dass er einen der hervorragendsten Plätze in der geschichtlichen Entwicklungsreihe der deutschen Naturforschung einnimmt, die zur Gestaltung des neuen Weltbildes führte. . . . Den von polnischer Seite erneut gemachten Versuch, Copernick dem deutschen Kulturleben streitig zu machen und ihn in das Polentum einzuordnen, weisen wir auf das entschiedenste zurück”.

The standard reference for the claims to Copernicus' Germanness was an article by the historian Hans Schmauch published in July 1937.⁸ Schmauch (1887–1966) gave detailed historical arguments for the German nationality of Copernicus, which were gladly quoted whenever proof of it was needed. Already in early August an article based on Schmauch's paper was published in the official Nazi newspaper *Völkischer Beobachter* where the German nationality of Copernicus was propagated with strong words. Moreover he was presented as an example of the German freedom of thought standing against Catholic repression. In referring to the condemnation of the Copernican system by the Catholic Church in 1616 the author hinted at the attacks of the Catholic Church against Nazi racial theory earlier in 1937, which will be discussed below. The emphasis of the article lay on the example Copernicus could give to contemporary Germans:

For us Nicholas Copernicus remains the German scientist, who had the courage to herald the truth to the world. . . . He will always belong to hall of fame of German intellect as an intrepid pioneer of a true Teutonic freedom of research: Nicholas Copernicus – the German.⁹ (Payr 1937)

Even though the frequency of these assertions may have declined in 1938 and 1939 the rhetoric didn't change a lot. Talk about "our Copernicus" (Schmauch 1938) and the "manly German" (Fladt 1938, 296) was matched by martial tones of the Nazi journalist Erich Krug. In his report on the official renaming of the *Astronomisches Rechen-Institut* in Berlin-Dahlem as *Copernicus-Institut* in February 1939, Krug celebrated "the victorious creator of a new conception of the world and founder of modern astronomy" under the title "Copernicus, the Great German" (Krug 1939, 81). Later that year Copernicus' home town would be German again, conquered by a regime that the Nazi Krug might have characterized with the same words as "the victorious creator of a new conception of the world."

The New Copernican Question in Germany in World War II

As a matter of fact the new Copernican question was not just a highly political issue but many German contemporaries took it very seriously. This can be illustrated by the hectic activity among leading German mathematicians when they learned that their

⁸ (Schmauch 1937) Slightly expanded versions appeared in 1943 in (Kubach 1943a) and (Papritz and Schmauch 1943). Schmauch published another tract on the topic in 1953 in a revisionist series devoted to the goal of maintaining the cultural and historical identity of German refugees from Eastern Europe (Schmauch 1953).

⁹ "Für uns bleibt Nikolaus Copernicus also der deutsche Wissenschaftler, der den Mut besass, der Welt die Wahrheit zu verkünden. . . . Als unerschrockener Vorkämpfer einer echt germanischen Forschungsfreiheit wird er immer der Ruhmeshalle des deutschen Geistes angehören: Nikolaus Copernicus – der Deutsche". In a similar vein (Kubach 1941, 8).

prominent Italian colleague Francesco Severi had referred to Copernicus as a “Polish astronomer” (*astronomo polacco*) in a talk on Galileo in 1939 (Severi 1939, 597). As soon as the Hamburg mathematician Wilhelm Blaschke learned about this he complained to Severi and wrote to the president of the Deutsche Mathematiker-Vereinigung (DMV, German Mathematical Union), Wilhelm Süss, requesting that the DMV better keep its distance from Severi until this affair was clarified. Süss immediately had a colleague press Severi to publish a correction of his statement. As Severi was apparently slow to react, Blaschke also wrote to Severi’s Roman fellow mathematician Enrico Bompiani explaining why it seemed problematic to him that Severi had called Copernicus a Polish astronomer:

We have always considered Copernicus German and only in recent decades a Polish claim on this astronomer has emerged. This claim seems definitely unjustified to us. That Severi has taken the Polish side in this question has been perceived as a very unfriendly act by all Germans I have spoken to, particularly in view of the current situation. . . . It seems to me that Severi’s statement as a prominent scientist, who has moreover frequently been honoured in Germany, against our position in this dispute is a serious matter in such serious times.¹⁰

Later that year Blaschke reported to Süss that he had met Severi in Bologna and Rome and that Severi felt quite awkward about the affair. In calling Copernicus a Polish astronomer Severi had “relied on the article on Copernicus in the Italian encyclopaedia, which has unfortunately been written by a Jew. But apparently Severi is quite willing to settle the affair in a reasonable way.”¹¹ In effect, Blaschke’s pressure had the desired outcome, as in a paper on Galileo published by Severi later in 1940 the “Polish astronomer” had turned into a “German abbot” (*l’abate tedesco*) (Severi 1940, 10).

Given the widespread political interest in the new Copernican question it does not come as a surprise that a group of historians was energetically and stalwartly preparing a German edition of Copernicus’ complete works in the midst of the war. The

¹⁰ “Seit jeher waren wir gewohnt, Kopernikus als Deutschen anzusehen und erst in den letzten Jahrzehnten ist ein polnischer Anspruch auf diesen Astronomen aufgetaucht, ein Anspruch, der uns durchaus unberechtigt zu sein scheint. Die Parteinahme Severis für den polnischen Standpunkt noch dazu in der jetzigen Zeit wurde von allen Deutschen, mit denen ich gesprochen habe, als grosse Unfreundlichkeit empfunden. Man kann sich natürlich auf den Standpunkt stellen, dass eine Gelegenheitsrede nicht sehr ernst zu nehmen ist, aber mir scheint doch, dass die Stellungnahme eines angesehenen Gelehrten wie Severi, der noch dazu in Deutschland vielfach geehrt wurde, in einer Streitfrage gegen uns in so ernster Zeit auch eine ernste Angelegenheit ist” (Blaschke to Bompiani, 23 February 1940). The correspondence is in the papers of Wilhelm Süss at the University Archives Freiburg, C 89/45.

¹¹ “Er hat sich bei seiner Bemerkung auf den Artikel über Kopernikus in der italienischen Enzyklopädie gestützt, der unglücklicherweise von einem Juden stammt. Severi scheint aber durchaus bereit zu sein, die Angelegenheit in vernünftiger Weise zu ordnen” (Blaschke to Süss, 9 May 1940, University Archives Freiburg, C 89/45).

leading figure in this enterprise was Fritz Kubach (1912–1945). After studying mathematics Kubach had received his Ph.D. for a historical dissertation on Kepler, which was largely based on archival research by an Austrian historian whom Kubach had paid for this job (Kubach 1935; cf. Siegmund-Schultze 1993, 116). Since 1933 Kubach had spent most of his energy on his political career in the Nazi party, which eventually culminated in his influential position in the inner circle of the Reichsstudentenführung, the Nazi student organization responsible for the ideological permeation and control of the German student body. At the same time he succeeded in procuring the political and financial support of the Deutsche Forschungsgemeinschaft (DFG, German Research Council) for his project of a complete edition of Copernicus' works. In the editorial project he was assisted by a top-class commission (Kommission für die Kopernikus-Gesamtausgabe). Kubach had enlisted recognized historical competence in the person of Max Caspar, historian of astronomy and editor-in-chief of Kepler's works. Most members, however, rather shone from the ideological point of view and guaranteed access to resources. Above all Kubach had secured the protection of SS-officer Rudolf Mentzel, president of the DFG and head of the Office for Scientific Affairs in the Ministry of Education and Research.

In 1941 Kubach laid out his project of the German edition of Copernicus' works, giving as one of the motives for such an enterprise, that "it is well known, that the Polish in their national arrogance, which is nourished by their justified feelings of inferiority, have claimed Copernicus as Polish. Especially in the last decades before 1939 they tried to 'prove' this by voluminous scientific publications and extensive cultural propaganda. However, the Germanness of Copernicus has been established without doubt in every respect"¹² (Kubach 1941, 8). The "publication of a worthy German edition of Copernicus' collected works" (ibid., 22) was seen as part of official political propaganda glorifying German and belittling Polish culture.

Even though Kubach had joined the army in 1941, he edited a book of Copernican studies in 1943 celebrating the quadricentennial of his death (Kubach 1943a). All of these studies emphasized that Copernicus was German and firmly repudiated any Polish claims on him. The volume included an expanded version of Hans Schmauch's earlier article (Schmauch 1937) under the telling title "Kopernikus' deutsche Art und Abstammung" (German nature and descent of Copernicus). Despite innumerable problems caused by the war and amply described in the preface, Kubach even succeeded in publishing a facsimile of the manuscript of Copernicus' main work *De revolutionibus orbium coelestium* as first volume of Copernicus' works in

¹² "Es ist bekannt, dass die Polen aus ihrer im wesentlichen von berechtigten Minderwertigkeitsgefühlen genährten Überheblichkeit heraus Nikolaus Kopernikus als Polen beanspruchten und dies vor allem in den letzten Jahrzehnten bis 1939 durch umfangreiche wissenschaftliche Veröffentlichungen und ausgedehnte kulturpolitische Massnahmen zu ‚beweisen‘ und zu vertreten suchten. Demgegenüber ist festzustellen, dass die Zugehörigkeit des Nikolaus Kopernikus zum deutschen Volkstum in jeder Hinsicht einwandfrei erwiesen ist".

1944. In the preface he explained that the need for a complete edition of Copernicus' works had been felt strongly because "Copernicus and his revolutionary theory had gained new fruitful liveliness in the contemporary revolution in the ideological and intellectual domain, a revolution comparable to the one he had seen in his time"¹³ (Copernicus 1944, X).

The Copernican quadricentennial saw quite a few other publications. Hans Schmauch edited a volume of Copernican Studies jointly with Johannes Papritz (Papritz and Schmauch 1943). It did not only include yet another version of Schmauch's 1937 article, but also a lengthy paper by the late Father Eugen Brachvogel who had already been among the most active propagators of Copernicus' German nationality in Weimar Germany. Brachvogel discussed Copernicus and the development of German intellectual culture (Nikolaus Kopernikus in der Entwicklung des deutschen Geisteslebens). He emphasized the importance of the German achievements in astronomy pointing to the revolution brought about by Copernicus, the "symbol of Hellenistic-German intellect and spirit" (Symbol hellenisch-deutschen Geistes), and consummated by Kepler and Friedrich Wilhelm Bessel as a "product of the German mind" (Werk deutschen Geistes) (Papritz and Schmauch 1943, 34 and 99; cf. Kubach 1941, 19). This was a variation of the theme that Regiomontanus, Copernicus, and Kepler stood at the core of the Copernican revolution (Ramsauer 1938, 313f; Kubach 1941, 8). However, the important elements of the triple star were the "Germans" Copernicus and Kepler.

The Gesellschaft zur Erforschung deutscher Kulturleistungen (Society for Research on German Cultural Achievements) commissioned their erstwhile president Rembert Ramsauer to write a booklet on Copernicus (Ramsauer 1943). And in May 1943 a special edition of the journal of the Institut für deutsche Ostarbeit (Institute for German Eastern Studies) in Krakow was devoted to Copernicus. In his preface Hans Frank (1900–1946), the governor-general of the occupied Polish regions, honored Copernicus the "founder of a splendid theory, supported by a bold flight of thought" and praised him as "a son of German blood, who has paved the way for German intellectual creativity most brilliantly" (Frank 1943, 61). A member of the Institute's department of history, Erwin Hoff, stressed the importance of Copernicus in contemporary political debates:

In England and America Polish emigrants are desperately trying in stubborn obsession and contrary to the facts to turn Copernicus' birthday, as they say, 'into a worldwide tribute to Polish science.' In reality they seek to make political capital out of this presumption. For lack of other possibilities the Americans try to meet these ambitions by declaring a 'Copernicus Day.' Therefore it is a pleasant duty for us to celebrate him as a true German genius in the 400th year of his death while our people faces serious times.

¹³ "als Kopernikus und sein revolutionäres Werk in der seiner Epoche vergleichbaren Wende grosser weltanschaulicher und geistiger Entscheidungen der Gegenwart neue fruchtbare Lebendigkeit gewann".

We do so before the forum of a world that believes that it can easily discard the contributions of German spirit.¹⁴ (Hoff 1943, 133)

As a matter of fact Polish commemorative activities were coordinated by Polish emigrants in the United States. On the occasion of a Copernicus gala at New York Carnegie Hall in May 1943 greetings of President Roosevelt were read, which were explicit on the point of Copernicus' nationality and the contemporary political context: "Commemoration of the quadricentennial of the death of Copernicus naturally turns our thoughts to his native Poland, now in chains and prostrate under the evil power of the Nazi conquest" (Gingerich 1999, 48).

In the years before the quadricentennial of 1943 the new Copernican question was a highly political affair in and outside Germany. In Germany it provided excellent opportunities to historians and scientists alike to put history of science in the service of the Nazi regime. Such opportunities were not too numerous. But, surprisingly enough, Galileo Galilei turned out to be another prominent figure from the history of science that could perfectly be used to support Nazi ideology. Galileo and his condemnation by the inquisition in 1633 were seen to stand in analogy to Nazi racial theory and its condemnation by the Catholic Church 300 years later as both cases gave proof of how the Catholic Church prosecuted new scientific results without justification. In Nazi Germany the Berlin mathematician Ludwig Bieberbach became the most emphatic advocate of this theory.

Ludwig Bieberbach and His Racial Theory

Bieberbach (1886–1982) taught mathematics at the University of Berlin. He was of high scientific reputation among his colleagues in the German mathematical community and held the influential office of secretary of the Deutsche Mathematiker-Vereinigung (DMV) from 1921. Though he had already been known to express nationalistic feelings in the 20s his quick and open conversion to National Socialist ideology in 1933 surprised many of his colleagues. He professed his new convictions so fervently that he ran into conflict with his colleagues in the DMV board and finally laid down his offices in January 1935.

Bieberbach was linked to National Socialism in two ways. On the one hand he tried to nazify science and scientific organizations, but as in the case of the DMV with very limited success. Nevertheless his colleagues were very careful not to get into his

¹⁴ "Ihn deshalb als echt deutschen Genius in seinem 400. Todesjahr – während in England und Amerika die polnischen Emigranten in sturer Besessenheit wider alles bessere Wissen krampfhaft bemüht sind, diesen Tag zu einer 'Huldigung der Welt für die polnische Wissenschaft' zu machen, wie sie sagen, in Wirklichkeit, um politisches Kapital aus dieser Anmassung zu schlagen, Amerika diesen Ambitionen wenigstens durch einen ‚Kopernikustag‘ mangels realer Möglichkeiten entgegenzukommen sucht – in ernstester Zeit unseres Volkes würdig zu feiern, ist uns eine schöne Pflicht vor dem Forum einer Welt, die so leicht den Beitrag des deutschen Geistes entbehren zu können glaubt".

line because he had considerable influence with party officials, particularly with the mathematician Theodor Vahlen (1869–1945), a long-standing Nazi (Mehrtens 1987; Remmert 1999, 16–25). Vahlen headed the Office for Scientific Affairs in the newly founded Ministry of Education and Research from 1934 to 1936 and later became president of the Prussian Academy of the Sciences (1938–1943). Incidentally Vahlen was won over by Kubach for the *Kommission für die Kopernikus-Gesamtausgabe* as was his successor in the Office for Scientific Affairs, Rudolf Mentzel.

On the other hand Bieberbach is known as the inventor and leading figure of the *Deutsche Mathematik* (German Mathematics), a racial theory of mathematics similar to *Deutsche Physik*, but less successful. As propagandistic mouthpiece Bieberbach co-founded the journal *Deutsche Mathematik* with Vahlen in 1936 (Mehrtens 1987). Bieberbach had first presented his own race-typology for mathematics to the public in April 1934 lecturing on “*Persönlichkeitsstruktur und mathematisches Schaffen*” (Structure of personality and mathematical creativity). He explained that there were two types of mathematical thinking, which he identified, roughly speaking, as Jewish and Aryan (Bieberbach 1934a, 1934b). One of the “major tasks of national socialist science,” Bieberbach said, was to “foster the German style in science.” He continued:

What I tell you is to clearly illustrate for my own science, i.e. mathematics, the influence of national traditions, blood and race on the style of work and reasoning. For the National Socialist this goes without proving. Rather it is an insight of extreme self-evidence. For the whole of our doings are rooted in blood and race and it is from them that they receive their originality.¹⁵ (Bieberbach 1934b, 235)

According to Bieberbach “blood and race have an influence” on the choice of problems scientists decide to work on and thereby affect “the sciences’ stock of definite and solid knowledge.” In order to assess the actual influence of blood and race and to give his own theory a scientific touch, Bieberbach referred to the work of the psychologist Erich Rudolf Jaensch (1883–1940) and his school.

Jaensch had intensively studied the structure of human cognition, especially the perception of space in the 1920s and early 1930s. On this basis he had tried to develop a scientifically based typology of personalities. Jaensch distinguished two basic classes of psychological types, the “S-type” or synaesthetic type and the “J-type” or integration-type. He characterized the S-type by unstable psychic functions and internally generated synaesthetic perceptions. Diametrically opposed stood the J-type with stable psychic functions, closely integrating perceptual imagery and conceptual

¹⁵ “Meine Ausführungen wollen für meine eigene Wissenschaft, die Mathematik, den Einfluss von Volkstum, von Blut und Rasse, auf den Stil des Schaffens an verschiedenen Beispielen klarlegen. Für den Nationalsozialisten bedarf nun freilich diese Behauptung gar keines Beweises. Sie ist vielmehr eine Einsicht von grösster Selbstverständlichkeit. Denn all unser Tun wurzelt in Blut und Rasse und empfängt von ihnen seine Eigenart”.

thinking. Jaensch further developed his typology by taking into account psychological generalizations about the typologically determined relationship between man and world in different peoples. These further distinctions eventually led to the basic polarity between three J-types (J_1, J_2, J_3) and two S-types (S_1, S_2). Only after 1933 did he try to link his typology with racist elements. His theories have scarcely been adopted in other disciplines apart from Bieberbach's racial theory of mathematics (Geuter 1985; Mehrtens 1987; Ash 1995, 343).

Bieberbach, however, immediately recognized the anti-Semitic, racist and hyper-German potential of the two classes Jaensch had proposed, and transferred them to the sphere of mathematics. He contrasted "the French S-type . . . who only allows that in reality which his mind puts into it" to the J-type who is "widely open to reality . . . and to the inflow of experience, who tries to take in as much as possible of reality with all his senses, which are for the mathematician intuition and thinking" (Bieberbach 1934a, 237). Bieberbach left no doubt that the J-type was primarily to be found in Germany, England, and the United States, whereas the S-type occurred not only in France but mainly among Jewish thinkers (Bieberbach 1934b, 236). To illustrate this he expounded his own view of the history of recent mathematical developments, where great German geometers were pressed hard by S-types who sought to deprive geometry of intuition and thereby demolish its fundamentals. According to Bieberbach this was a typical example of "how influence from the outside of the own race, how this extraneous temptation barred Germans the way to the source of their own power and strength" (*wie rassefremder Einfluss, wie rassefremde Verführung dem Deutschen die Quelle der eigenen Kraft versperrt*) (ibid., 237).

These were clear links to Nazi racial theory and Bieberbach himself did explicitly acknowledge that he had "used both Jaensch's psychological classification and the characterizations of racial theory" in his considerations. Bieberbach's racial theory departed from Jaensch's typology insofar as he took it for granted, that there "have to be established relations between the psychological and the racial types" (Bieberbach 1934a, 242). It is clear that Bieberbach was not thinking in Jaensch's psychological categories any more, but in purely racial ones. Jaensch's results, however, were employed to give scientific legitimation to Bieberbach's own racial theory, *Deutsche Mathematik*.

Racial theory stood at the very core of Bieberbach's book on Galileo and the inquisition that appeared in late 1938. It had grown out of a series of lectures Bieberbach had given in winter 1937/38. On superficially skimming through its pages, the booklet appears to be a carefully researched, popular account of the Galileo affair with obligatory anti-Catholic undertones, well written, but not particularly breathtaking, well informed, but without any pretense to originality. At the very end Bieberbach writes, what could be mistaken for a plea for the freedom of scientific research, namely that "for us as well, living in the present age, the freedom of science is an inalienable treasure and a compelling duty to the people whose welfare is the

beginning and end of all our action and thought”¹⁶ (Bieberbach 1938, 140). This is, however, not to be understood as a plea for the freedom of scientific research in the service of the people. Neither does Bieberbach seek to eliminate Nazi ideology from the sphere of the sciences in the interest of efficient research in preparation for the war as discussed in 1937/38. His target is the Catholic Church and his remark directly links to the papal encyclical letter “Mit brennender Sorge” (With Deep Anxiety) of March 1937, where Nazi racial theory had unequivocally been condemned.

National Socialist Racial Theory and the Catholic Church

Historiography on the Catholic Church and Nazi Germany is slippery ground in that much of recent public discussion and historical research has focused on Eugenio Pacelli (1876–1958), who on the eve of World War II was elected Pope and took the name of Pius XII. The stance of Pius XII vis-à-vis Nazi Germany and the Shoah in particular is currently debated intensively, the critical position culminating in John Cornwell’s provocative and stimulating book *Hitler’s Pope*, which has, however, justly been criticized (Cornwell [1999] 2000). The literature on Pius XII and Nazi Germany is vast and growing rapidly, but there are several recent studies surveying the field (e.g. Feldkamp 2000, Miccoli 2000).

In Germany the Catholic Church’s opposition to Nazi racial theory played a prominent role in pastoral letters of the early 1930s. Possibly the Nazis believed that they could silence German Catholic Church officials’ critique of Nazi ideology by the Reich Concordat of June 1933, that was to guarantee the Catholic Church’s status and independence in Nazi Germany. However, they did certainly not have any intentions to fulfill the letters of the Concordat. From the very beginning the Concordat was time and again violated by the Nazi government. This led to a stream of charges and countercharges and a constant exchange of memoranda and Pro memoriae between Berlin and the Vatican (Scholder 1977/1985; Hürten 1992; Smolinsky 1998; Kreutzer 2000, 207–261; Lönne 2000, 160–170).

This piling up of official notes could scarcely deceive the involved parties about the fact that to negotiate a modus vivendi to both sides’ satisfaction was virtually impossible. Already in May 1934 the Roman Curia in an extensive Pro memoria to the German government, that was never replied to, lamented that many problems which under normal circumstances would have been solved long ago had been waiting to be discussed for months. The same letter condemned the “absolute position of the racial theory in Nazi ideology and its proclamation as a compensation for religion” (die Verabsolutierung des Rassegedankens und vor allem seine Proklamation als Religionsersatz) (Albrecht 1965, 125). Even though the majority of German episcopacy was appalled by the overt anti-Semitism of the Nazis, they were

¹⁶ “... auch uns Heutigen [ist] die Freiheit der Forschung ein unveräußerliches Gut, eine dringende Pflicht am Volke, dessen Wohl zu dienen uns das A und O für all unser Handeln und Denken ist”.

even more worried about Alfred Rosenberg's "new paganism" (Neuheidentum) as proclaimed in his *Mythus des 20 Jahrhunderts* (Rosenberg [1930] 1934), which the Holy See put on the Index of Forbidden Books in 1934. Moreover, the episcopacy considered the eugenic laws of June 1933, that ran under the euphemistic title "Gesetz zur Verhütung erbkranken Nachwuchses," as unbearable repercussions of Nazi racial theory. All in all, silent as well as explicit protests against racial theory persisted even though the Nazis put considerable pressure on the Catholic Church and its officials in the mid-1930s (van Schewick 1980; Repgen 1988; Dietrich 1990).

In the midst of this highly strained atmosphere between the Nazi state and the Catholic Church Pius XI dispatched the encyclical letter *Mit brennender Sorge* in March 1937, where he again denounced the constant disregard of the Reich Concordat by the German government. Not only was this encyclical letter read from the pulpits throughout Germany, but the Catholic Church even succeeded in distributing 300,000 printed copies of it, without giving the various Nazi information and police agencies the slightest notion of what was going on (Raem 1979, 55f; Cornwell [1999] 2000, 179–184; Feldkamp 2000, 104–112). This highly visible and clear condemnation of Nazi racial theory marked a climax in the dispute between the two parties. Pius XI spoke out against the "insinuations of blood and race" (Einflüsterungen von Blut und Rasse) and left no doubt about his and the Catholic Church's stance:

Whoever tries to isolate the concept of race, or people, or state, or constitution, the authorities of the state or other basic values of human social organization – which hold a fundamental and honourable position in the earthly hierarchy – whoever tries to isolate these from the context of the secular hierarchy of values and seeks to make the concept of race into the supreme norm of all values, including religious values, and dares to deify and adore these idols, whoever does this violates the god given order of things.¹⁷ (Albrecht 1965, 410)

Nazi officials, led by Goebbels, cried out in rage at these words and were determined to take revenge (Raem 1979). Having been duped by the distribution of the encyclical, the Gestapo took particular offense and made detailed plans for the future prevention and repression of clerical and religious propaganda (Neuhäusler 1946, 360–382). The official and public condemnation of the Nazi racial theory by the Catholic Church, that lay at the core of the encyclical, was the issue Bieberbach addressed in his book on Galileo and the inquisition.

¹⁷ "Wer die Rasse, oder das Volk, oder den Staat, oder die Staatsform, die Träger der Staatsgewalt oder andere Grundwerte menschlicher Gemeinschaftsgestaltung – die innerhalb der irdischen Ordnung einen wesentlichen und ehrengbietenden Platz behaupten – aus dieser ihrer irdischen Wertskala herauslöst, sie zur höchsten Norm aller, auch der religiösen Werte macht und sie mit Götzenkult vergöttert, der verkehrt und fälscht die gottgeschaffene und gottbefohlene Ordnung der Dinge".

Bieberbach's *Galilei und die Inquisition*

In the late summer of 1938, only a few weeks before it appeared, Bieberbach reported to his publisher that he had presented the book to the church department of Goebbels' Ministry of Propaganda, where it had been warmly welcomed.¹⁸ Such friendly official support was not due to the quality of Bieberbach's historical narrative, which covers the first 120 of 140 pages. Rather the eyes of Goebbels' censors must have widened with pleasure on reading the remaining 20 pages, Bieberbach's concluding reflections explaining how the story pertained to the contemporary situation, how the Galileo affair could be turned into a tool of Nazi propaganda.

In his narrative Bieberbach castigated the "oriental perspective" of scholasticism, its "oriental arabesques" and at the same time emphasized the importance of the "great German astronomer Copernicus" (Bieberbach 1938, 15, 17). The Roman Curia as portrayed by Bieberbach had never been "interested in truth and religion, but only in power" and stood as emblematic for corrupted clericalism, that "would never have problems finding a passage from the Bible to contradict an inconvenient scientific truth" (*ibid.*, 35f, 67). Finally the venerable and blind Galileo in front of the inquisition, the trial of 1633, automatically reminded him of the prominent "Moscow show trials against the Bolsheviks." Concerning Galileo he wrote:

And in fact the sentence and the comedy of recantation enhance the impression, that the whole process was not intended to bring out the truth, but was purely designed for the purpose of propaganda. Propaganda, however, that was in no way concerned with the honour and dignity of one's neighbour, handling the ethical good of truth at will. The end justifies the means, is the idea everything is subordinate to.¹⁹ (*Ibid.*, 101f)

In spite of openly anti-Semitic and anti-clerical sections Bieberbach's main theme to elucidate the analogy between the condemnation of Galileo and the condemnation of Nazi racial theory can only be seen in the background of his story. But towards the end, after 120 pages of historical narrative, Bieberbach smoothly turns to a very different kind of discourse when he sets out to defend Nazi racial theory. He conceded that the Catholic Church "did no longer cite inconvenient thinkers to Rome for condemnation." In his view, however, this was nothing the Catholic Church itself could take credit for. Although, as Bieberbach explained, there had not been another Galileo affair after 1633, the Catholic Church still had the Index of

¹⁸ Letter of Bieberbach to the Arbeitsgemeinschaft für Zeitgeschichte, 30 August 1938. Bieberbach's correspondence with the publisher and a file of reviews are in the possession of the Institut für Geschichte der Naturwissenschaften of the University of Munich (IGN Munich). It is a pleasure to express my gratitude to Menso Folkerts, who kindly made the material accessible to me.

¹⁹ "Und in der Tat belegt auch das Urteil und die Abschwörkomödie den Eindruck, dass mit dem Ganzen nicht die Findung der Wahrheit, sondern vielmehr eine propagandistische Wirkung beabsichtigt war, eine Propaganda freilich, die mit der Ehre und der Würde des Nächsten und mit dem ethischen Gut der Wahrheit nach Belieben umspringt. Der Zweck heiligt die Mittel, ist ein Gedanke, dem alles feil ist".

Forbidden Books in operation, which included Immanuel Kant's *Kritik der reinen Vernunft*, Leopold von Ranke's *Die römischen Päpste in den letzten vier Jahrhunderten* and the historical works of Ferdinand Gregorovius. And that was not all, he continued:

As it appears scientific results still threaten the faith. No, today's Church has scarcely more respect for the sciences than it did in the past. Rosenberg's *Mythus des 20 Jahrhunderts* has only recently been put on the Index where the *Oeuvres du philosophe du Sanssouci* have long had their place. You might subject that it was allowed to consult all these books for scientific purposes. But that is not the only point we want to make, that scientists and learned men may use these books. What we want is that the fruit of our scientists' results are put in the service of our people and that the education and culture of our people profit from the work of our scientists.²⁰ (Ibid., 124f)

This is the point where he abandons any pretense of objectivity and takes arms against the sea of troubles Nazi racial theory had to face. Bieberbach is worried about the Catholic Church's threats to the fundamentals of Nazi ideology. Such threats regularly occur – to use his words – “when the Church feels that scientific discoveries are of value for ideology, be it the theory of evolution or racial theory” (ibid., 129). Copernicus, Galileo, Darwin, and finally Rosenberg stand as witnesses to the “Catholic Church's desire for power” as it tries “to discredit inconvenient governmental measures and scientific discoveries” (ibid., 136).

In constructing this genealogical table of ecclesiastical persecution of new scientific results with Galileo as principal martyr, Bieberbach was not only advocating the freedom of scientific research either with regard to the sciences or to racial theory. His main concern was the sovereignty of the people and the Catholic Church's unjustified claims to secular power. He felt quite confident that in the end “fair research would prevail over preconceived notions and ecclesiastical stupidity” as never could “the progress of science be hindered by prohibitive measures.” Along with this optimistic view went his hope, that a quick stop might “be put to the nuisance of ecclesiastical interference in affairs that are not their own, be it in the scientific, political, national or social sphere”²¹ (ibid., 137f).

This characterizes the feeling of 1937 very well when the condemnation of Nazi racial theory by Pope Pius XI had caught the Nazi state quite unprepared, challenging

²⁰ “Noch immer scheint demnach die wissenschaftliche Erkenntnis den Glauben zu gefährden. Nein, die Achtung der Kirche vor der Wissenschaft ist heute schwerlich grösser als ehemals. Auch Rosenbergs ‘Mythus des zwanzigsten Jahrhunderts’ wurde kürzlich auf den Index gesetzt, wo die *Oeuvres du philosophe du Sanssouci* schon lange stehen. Man wird einwenden, man dürfe zu gelehrten Zwecken alle diese Bücher verwenden. Aber daran liegt uns nicht allein, dass Gelehrte jene Bücher verwenden dürfen, sondern uns liegt daran, dass das Gedankengut, das unsere Gelehrten erarbeiten, auch unserem Volke nützt und in seinen Dienst gestellt ist, dass die gelehrte Arbeit an ihrem Teile der Volkserziehung und der Volksbildung nützt”. *Philosophe du Sanssouci* refers to Frederick the Great, king of Prussia.

²¹ “Möchte der Unfug einer Einmischung religiöser Dienststellen in fremde Angelegenheiten, mögen sie nun der Wissenschaft, der Politik, dem völkischen oder dem sozialen Leben angehören, endlich ein rasches Ende finden”.

one of the fundamental pillars of Nazi ideology. Accordingly, reactions to Bieberbach's historically disguised polemics were very friendly, even enthusiastic.

Reactions to *Galilei und die Inquisition*

Though Bieberbach's publisher, the Arbeitsgemeinschaft für Zeitgeschichte, had not been idle in advertising his book, by May 1939 only 500 of 3000 copies had been sold. In the tightly controlled press, however, the book was widely reviewed and recommended. In 1939 more than 30 reviews appeared in newspapers and weekly magazines. Most of them were positive or even enthusiastically greeted Bieberbach's main thesis, the analogy between the condemnation of Galileo and that of Nazi racial theory, underlining its importance for Nazi ideology. Few reviewers tried to take a neutral stance and only a minority of the critics confined themselves to a discussion of the historical part. The division into a historical and an ideological part was scarcely mentioned at all. Only one reviewer dared to remark critically, that apart from the final chapter Bieberbach "stuck to the historical facts" in his book.²² As a compromise between these two classes of reviews the book was sometimes carefully characterized as a history of "ecclesiastical and clerical interference."²³

Surprisingly enough the importance of the analogy between the Galileo affair and the condemnation of Nazi racial theory for Nazi ideology was not even stressed in all Nazi papers. The reviewer of the *Hakenkreuzbanner* for example did not say a single word about ideology and racial theory, but only commented "that the book opens the curtain to a curious period of western intellectual history."²⁴ Of course it is easily conceivable that not all the critics had read the book under review to the last page. With a book as Bieberbach's where the explosives were put in the concluding passages this could naturally lead to a very different assessment than reading from beginning to end.

Most of the reviews, however, clearly recognized and pointed to the propagandistic potential of the Galileo affair in contemporary ideological debates and disputes relating to church policy and emphasized its value for the legitimation of Nazi racial theory. With regard to the "latest Vatican attacks on racial theory," Bieberbach's book soon stood as a "book of enlightenment" to prove, that the Church "had not at all

²² Review by Paul Rausch in *Dresdner Neueste Nachrichten*, 12 December 1939: "Abgesehen von dem Schlusskapitel, in dem Bieberbach sein Thema *Galilei und die Inquisition* zur Diskussion der prinzipiellen Haltung der Kirche in bezug auf die Freiheit der Wissenschaft erweitert, beschränkt er sich auf die Tatsachen der Geschichte".

²³ Quoted from the review by Hermann Steuder in *Der Altmärker. Altmärkische Tageszeitung, Stendal*, 20 February 1939; similar assessments in the reviews in *Heidelberger Neueste Nachrichten*, 5 May 1939, and *Mainzer Anzeiger*, 7 March 1939.

²⁴ Quoted from the review by Hermann Eckert in *Hakenkreuzbanner. Das nationalsozialistische Kampfblatt Nordwestbadens*, Mannheim, 15 March 1939; likewise in the reviews in *Stuttgarter NS-Kurier*, 20 and 26 June 1939.

changed its attitude to science since the times of Galileo.”²⁵ In the *Neue Vogtländische Zeitung* the booklet’s “value for the contemporary ideological debates” was praised pointing to the applicability of “Galileo’s legendary word *and still it moves*” to current issues (24 February 1939; emphasis in original). The review in the *Nationalsozialistische Rheinfront* was quite explicit on this point: “But we know: just as those astronomical truths that were under debate 300 years ago couldn’t be oppressed for all that, the results of racial theory cannot be denied any more but will incessantly be effective” (27 February 1939). This optimism was carried into many local papers. *The Neues Tageblatt, Alteingesessene Heimatzeitung des niederschlesischen Steinkohlereviere*, for example, declared with confidence: “Just as the new theories finally carried the day at that time, the new results of racial theory cannot be held back by anything” (4/5 March 1939). Such optimism was frequently accompanied by appeals to resist all criticism against racial theory. The Catholic Church, considered the main spokesman of such criticism, was heavily attacked for its pursuit of power that resulted in its “opposing even today new scientific discoveries, as racial theory, with the same stubbornness” as in the days of Galileo.²⁶

Fritz Kubach chimed in with these tones in his short review for the *Zeitschrift für die gesamte Naturwissenschaft*. Praising Bieberbach’s “fluently written and easily understood” account of the Galileo affair Kubach underlined Bieberbach’s position that the Catholic Church’s motives could be put down to “its claim to power *in all questions of weltanschauung*. The parallel to the Catholic Church’s position in the present, for instance in the question of truth and correctness of racial theory, is obvious. In this respect Bieberbach’s book treats an example from the past which is very instructive for today’s debates”²⁷ (Kubach 1939; emphasis in original).

Bieberbach’s central thesis, that the condemnation of Galileo stood in direct analogy to the condemnation of Nazi racial theory, circulated more widely due to its propagation by the press than it could have with just 500 copies of the book sold. The importance of this analogy lay not only in its value as an argument in ideological debates. Along with it went the optimistic notion of a future where Nazi racial theory and – even more important – National Socialism itself would triumph over the

²⁵ Quoted from the review by Hans Horn in *Bayerische Ostmark. Amtliches Organ der NSDAP*, Bayreuth, 6 March 1939.

²⁶ Quoted from the review by Kurt Roschmann in *Württembergische Zeitung. Stuttgarter Nachrichten und Handelsblatt*, 11/12 March 1939; similar messages in the reviews in *Hannoversches Tageblatt*, 19 March 1939; *Dresdner Anzeiger*, 29 March 1939; *Magdeburger General-Anzeiger*, 31 March 1939; *Münchener Abendblatt*, 22 May 1939; *Nationalzeitung, Essen*, 5 June 1939; *Völkergemeinschaft*, Heidelberg, 16 July 1939; *Die Barmer Ersatzkasse. Hausmitteilung für Mitglieder*, Berlin, No. 9, September 1939.

²⁷ The review is very short: “In flüssig geschriebenem Stil und leicht verständlicher Weise stellt Bieberbach das Geschehen um Galilei in der ersten Hälfte des 17. Jahrhunderts dar. Dabei wird die am geschriebenen Buchstaben klebende starre Haltung der römischen Priesterschaft enthüllt und auf ihr Motiv: den Machtanspruch der Kirche in *allen weltanschaulichen Fragen* zurückgeführt. Die Parallelität zur Stellungnahme der katholischen Kirche in der Gegenwart, etwa zur Frage der Wahrheit und Richtigkeit der Rassenlehre liegt auf der Hand. In dieser Hinsicht behandelt die Schrift von Bieberbach ein lehrreiches Beispiel aus der Vergangenheit für ein gerade heute wieder sehr aktuelles Thema”.

Catholic Church, just as Galileo had in the end carried the day. Naturally Bieberbach hoped that the accelerated step of history in the twentieth century made it quite probable that racial theory would stand uncontested quicker than Galileo and Copernicanism had (Bieberbach 1938, 138).

Bieberbach achieved his goal to turn the Galileo affair into an instrument of Nazi propaganda against the Catholic Church. In the Vienna edition of the *Völkischer Beobachter* his book was not only recommended as a “valuable history of the Copernican theory,” but mainly because of the parallel that could easily be drawn between the Galileo affair and the “Church’s comportment vis-à-vis the theories of modern science and biology, namely racial theory.”²⁸ The *Nordische Zeitung* was not that widely circulated, but it celebrated the book in even more enthusiastic words: “It is to be wished that every German man and every German woman may have the opportunity to read Bieberbach’s arguments!”²⁹

The Record of Success of *Galilei und die Inquisition*

In term of copies sold the real success of the book was yet to come. In writing *Galilei und die Inquisition* Bieberbach had given an example of how the history of science could be put in the service of National Socialism. In spite of the publisher’s advertising campaign and the fact that the book had been very well received by the press, its sales numbers had not met the publisher’s expectations by December 1939.³⁰ Only in February 1942, the year of the 300th anniversary of Galileo’s death, had the 3,000 copies finally been sold. Moreover the publisher had over 2,500 subscriptions for a second printing. Among those were 1,000 copies that Alfred Rosenberg’s office for the control of Nazi ideological education had ordered to be distributed in the German army.³¹ Pointing to this fact, which clearly indicated that Nazi authorities considered the book as ideologically relevant, the publisher obtained permission for a second printing of 25,000 copies in March 1942. This was well above the wartime maximum concession of 5,000. In addition to this the Parteiamtliche Prüfungskommission zum Schutze des NS-Schrifttums, i.e. the Nazi office in charge of the so-called NS-Bibliographie, the official bibliography of ideologically relevant publications, wrote to the publisher that the book might even be included in the NS-Bibliographie.³² Although this hope never came true as the war went on, it would have meant a considerable increase of interest in the book.

²⁸ Quoted from the review by Wilhelm Bietak in *Völkischer Beobachter, Wiener Ausgabe*, 21 May 1939.

²⁹ “Möge jeder deutsche Mann und möge jede deutsche Frau doch einmal Gelegenheit haben, die Ausführungen Bieberbachs zu lesen!” *Nordische Zeitung. Unabhängige Zeitung für den Nordischen Gedanken, Verden-Aller, Ostermond*–April 1939.

³⁰ Arbeitsgemeinschaft für Zeitgeschichte to Bieberbach, 21 December 1939 (IGN Munich).

³¹ Arbeitsgemeinschaft für Zeitgeschichte to Bieberbach, 9 February 1942 (IGN Munich).

³² Arbeitsgemeinschaft für Zeitgeschichte to Bieberbach, 19 March 1942 (IGN Munich). On Rosenberg’s office and the NS-Bibliographie cf. (Knoche 1990, Barbian 1993).

In March 1942 the publisher further increased sales expectations and in September 1942 applied for permission to print another 5,000 copies. But the paper finally delivered in January 1943 was only sufficient for roughly 23,600 copies.³³ However, neither Bieberbach nor the publisher had counted on the book ever being in so high demand. Bieberbach's mobilization of the Galileo affair for National Socialism had not only become a propagandistic success, but could even be considered a best-seller.

Galileo and the Axis Berlin-Rome

In May 1938 Hitler paid a state visit to Italy reciprocating Mussolini's September 1937 visit to Germany. The mission was to strengthen the Axis Berlin-Rome that had been proclaimed by Mussolini in November 1936. On the occasion of the official ceremony in the Palazzo Venezia, Mussolini's seat of government, Hitler handed to the Duce, instead of the official gift, a document expressing "the gratitude of the German people towards one of the most famous scientists in world history." He continued:

As Führer and chancellor of the Deutsches Reich I request Benito Mussolini, the Duce of the people, that has given the great inventor and scientist Galileo Galilei to the world, to accept as a token of our reverence and friendship a Zeiss telescope and the complete equipment of an observatory.³⁴ (Schulz 1939)

Here Galileo, who had built a telescope in 1609 and had been the first to turn it to the heavens to make astronomical observations, stands for German-Italian friendship. The gift of the Zeiss telescope and of the observatory was not only intended as a symbolic act to honor Galileo and his fight for the "theory of the great German Nicholas Copernicus." Rather it was to point to the fact that Galileo's greatness had not been lost in world history because he had found worthy successors in Germany. On the occasion of Hitler's visit the Nazi journalist Erich Krug dedicated an article to Galileo in the *Völkischer Beobachter*, particularly stressing the "actions and sufferings of his life of a fighter" (*Taten und Leiden seines Kämpferlebens*; Krug 1938). Galileo was not only suitable as a model for the fight about Nazi ideology. He also stood as a symbol for the "German-Italian block" which

³³ Arbeitsgemeinschaft für Zeitgeschichte to Bieberbach, 21 April 1942, 7 September 1942 and 9. January 1943 (IGN Munich).

³⁴ "Als Führer und Kanzler des Deutschen Reiches bitte ich Benito Mussolini, den Duce des Volkes, dem die Welt den grossen Erfinder und Gelehrten Galileo Galilei zu danken hat, als Zeichen der Verehrung und Freundschaft ein Zeiss-Teleskop mit der gesamten Ausstattung eines Observatoriums als Geschenk entgegenzunehmen". Cf. the report in the *Völkischer Beobachter*, Süddeutsche Ausgabe, München, 5 May 1938. On Italo-German relations during the Nazi period see (Petersen 1988; Hoffend 1998).

Goebbels conceived of as “the centrepiece of Occidental culture” in January 1939 (das Kernstück des abendländischen Kulturkreises; Petersen 1988, 55).

The suggestive powers of this symbol even grew in the first war years up to September 1943 when the Axis Berlin-Rome broke. In 1942 Wilhelm Blaschke toured Italy with a lecture on Galileo and Kepler. In his words, “the birth Galileo and Kepler gave to the new science” stood as representative for the close ties between Italy and Germany, “the countries that now are again united by a common fate in the fight for a better and more unified Europe” (Blaschke 1943).

Blaschke did not stand alone with this genealogy as others, too, saw the roots of German-Italian entente going back to Galileo and Kepler. In 1942 the Hamburg historian of science and technology Hans Schimank (1888–1979) published two articles to commemorate the 300th anniversary of Galileo’s death. He stressed that “Germany and Italy had equal shares in the shaping of European culture.” As “one of the most beautiful examples” of this he pointed to Galileo and Kepler in their “intellectual brotherhood in arms” (geistige Waffenbrüderschaft) in the debates about the Copernican system (Schimank 1942a, 33). But this “loyal and faithful fighting alliance” (treue Kampfgemeinschaft; Schimank 1942b, 57) was even more short-lived than Galileo’s instrumentalization in Nazi ideological debates, coming to a sudden end in September 1943 with the Italian-Allied armistice.

Concluding Remark

Galileo was not only turned against the old, mainly the stubbornness of the Catholic Church, but also against the new, Einstein’s theory of relativity for instance. One of its most active enemies was the astronomer Bruno Thüring, an ardent Nazi and supporter of the Deutsche Physik. His reputation both as astronomer and Nazi were good enough for Kubach to make him a member of the Kommission für die Kopernikus-Gesamtausgabe and Thüring did not stand back when it came to defending the Germanness of Copernicus (Thüring 1943). He had repeatedly attacked Einstein’s theory of relativity with open anti-Semitism. The peak of his malicious campaign was reached in his paper on “Einstein’s Attempt to Overthrow Physics” (Albert Einstein’s Umsturzversuch in der Physik) first published in *Forschungen zur Judenfrage* (Thüring [1940] 1941). But even when writing on Galileo in the *Zeitschrift für die gesamte Naturwissenschaft* in 1942, Thüring found a way to attack Einstein. Rather unexpectedly he compared the “blind Aristotelianism” of the seventeenth century to the “blind Einsteinianism and relativism” (blinden Einsteinismus und Relativismus) of the twentieth century and turned Galileo against Einstein:

Galileo’s intellectual stance and his combative spirit are as necessary to modern science as they were in his times. And those who thoroughly study the history of science of the last 40 years since the advent of Einsteinianism and his school, and seek for its motivations and goals,

tendencies and motives, those who do so, will find that the analogue to Galilean inquisition is not at all missing here.

Consequently we greet the great scientist and fighter 300 years after his death and express the hope that the spirit of Indo-Germanic clarity that was alive in him may find its bearers today and in the future.³⁵ (Thüring 1942, 3f; emphasis in original)

Such words once again illustrate the astonishing flexibility Galileo had in ideological and historical discourse in Nazi Germany, where even his achievements in research important to war efforts were praised. This flexibility was not first discovered by historians and politicians in Nazi Germany (Remmert 1998; Segre 1998). But Galileo proved to be an extremely suitable candidate to legitimize a vision of history in the service of National Socialist ideology and politics. Bieberbach's version of the Galileo affair was just the peak of such activities to politicize topics from history of science as has been illustrated above.

Historians of science have often posthumously denied Bieberbach, Ramsauer, Thüring, and others access to the discipline. Accordingly they have been described as mathematicians, astronomers, etc., who had not been professional historians of science, but had only occasionally turned their interests and pens to history. Indeed, there are good arguments for this posture. But problems arise with other scientists as Ernst Zinner whose historical achievements are still valued. The systematic exaggeration of German achievements in the development of science in his "Entstehung und Ausbreitung der copernikanischen Lehre" (Zinner 1943) had already been heavily criticized by Edward Rosen (Rosen 1945, 266). In the reprint of 1988, however, the editors, both historians of astronomy, only conceded "some Germanisms" (einige Germanismen) and that's almost all they say about it (Zinner [1943] 1988, VII). This editorial policy has been heavily criticized by Robert S. Westman on good grounds (Westman 1997, 260f). But Westman for his part simply dismissed Kubach as "a party official," which is only part of the truth as, like it or not, he had gained his Ph.D. for work in the history of science – whatever value we may attach to it today (Kubach 1935). In both cases the potential importance of the history of science as legitimizing effort in Nazi Germany or elsewhere is misjudged. Interplay between history of science and the Nazi ideological agenda could be very close as has been shown.

Looking back on the historiography of science in Nazi Germany from the perspective of its importance to contemporary efforts to legitimize a suitable vision

³⁵ "Galileische Geistesrichtung und Galileisches Kämpfertum tun daher der heutigen Wissenschaft ebenso not wie der damaligen. Und wer die Geschichte der Wissenschaft der letzten 40 Jahre seit dem Aufkommen des Einsteinismus und seiner Schule aufmerksam in seinen Hintergründen und Zielsetzungen, Tendenzen und Methoden durchforscht, der wird auch finden, dass das Analogon zur Galileischen Inquisition durchaus nicht fehlt. So grüssen wir den grossen Forscher und Kämpfer 300 Jahre nach seinem Hinscheiden und geben der Hoffnung Ausdruck, dass der Geist indogermanischer Klarheit, der in ihm lebendig gewesen ist, auch heute und in der Zukunft seine Träger finden möge". On anti-Semitic propaganda against Einstein see Hentschel 1990.

of German contributions not only to the history of science but to European cultural development gives a completely different perspective from that generated by looking back in search of the origins of an academic discipline and its lasting achievements. But these strings cannot easily be disentangled. By fashioning history of science as a politically important venture Kubach, Ramsauer, and others did not only put it in the service of the Reich, but at the same time contributed to its being accepted as a worthwhile activity (Kubach 1943b; Ramsauer 1935; cf. Brocke 1995, 124). The effects of these processes still have to be investigated and their exploration would have to be part of a systematic historical study of the field.

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It's not a stretch to say the Copernican revolution fundamentally changed the way we think about our place in the universe. In antiquity people believed the Earth was the centre of the solar system and the universe, whereas now we know we are on just one of many planets orbiting the sun. But this shift in view didn't happen overnight. Rather, it took almost a century of new theory and careful observations, often using simple mathematics and rudimentary instruments, to reveal our true position in the heavens. We can gain insights into how this profound shift unfolded by looking at the actual Nazi Germany is a reference to the period in German history (1933-1945) during the totalitarian dictatorship of Adolf Hitler through the Nazi Party. 25. For the execution of all of this we demand the formation of a strong central power in the Reich. Unlimited authority of the central parliament over the whole Reich and its organizations in general. The forming of state and profession chambers for the execution of the laws made by the Reich within the various states of the confederation. The leaders of the Party promise, if necessary by sacrificing their own lives, to support by the execution of the points set forth above without consideration. On 28th July 1921 Adolf Hitler became leader of the party. In Germany, assessment of the Nazi past has moved first from silence, and then from an emotionally charged engagement, to the more critical analyses of today. There has been a closer examination of the involvement of particular professional groups during the Nazi era, such as historians and lawyers. Particular interest has also been shown in the ordinary aspects of living and coping in Hitler's Germany, the daily struggle and the moral dilemmas. An enormous interest in the German opposition against Hitler continues. Serious political literature in Germany has not produced anything that could remotely be considered a justification of Nazism or an attempt to diminish Hitler's responsibility for the outbreak of the Second World War. #