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National States and International Science: A Comparative History of International Science Congresses in Hitler's Germany, Stalin's Russia, and Cold War United States

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### ABSTRACT

Prior studies of modern scientific internationalism have been written primarily from the point of view of scientists, with little regard to the influence of the state. This study examines the state's role in international scientific relations. States sometimes encouraged scientific internationalism; in the mid-twentieth century, they often sought to restrict it. The present study examines state involvement in international scientific congresses, the primary intersection between the national and international dimensions of scientists' activities. Here we examine three comparative instances where such restrictions affected scientific internationalism: an attempt to bring an international aerodynamics congress to Nazi Germany in the late 1930s, unsuccessful efforts by Soviet geneticists to host the Seventh International Genetics Congress in Moscow in 1937, and efforts by U.S. scientists to host international meetings in 1950s Cold War America. These case

studies challenge the classical ideology of scientific internationalism, wherein participation by a nation in a scientist's fame spares the scientist conflict between advancing his science and advancing the interests of his nation. In the cases we consider, scientists found it difficult to simultaneously support scientific universalism *and* elitist practices. Interest in these congresses reached top levels of the state, and access to patronage beyond state control helped determine their outcome.

Internationalism has been a focus of attention by historians of science for many years. They have examined the rapid "rise" of international science in the decades preceding World War I, its "disruption" during the war, and its slow "restoration" after the end of hostilities.<sup>1</sup> International scientific institutions, research centers, associations, philanthropic support, and prizes (from the International Research Council to the Rockefeller Foundation and the Nobel Prizes) have all come under close scrutiny.<sup>2</sup>

Previous studies, however, have analyzed international science primarily from the point of view of scientists. The inflammatory German 'Appeal to the Civilized World' in 1914 – like the subsequent decision by French, British and U.S. scientists to exclude German researchers from international scientific unions following World War I – have received special attention.<sup>3</sup> These interconnected episodes have often been viewed as significant breaches in the then-prevailing ideology of Republic of Letters internationalism, perpetrated by scientists themselves, that science was a transnational activity uncontaminated by the sordid realm of politics.<sup>4</sup> Much

of this literature assumes that international relations constitute an essential feature of “normal” science: in the absence of major disruptions such as world wars, international science persists because scientists actively seek “internationalization.”

In this study, we examine the state’s role in international scientific relations. In investigating how states shape the practice of science, we focus on international congresses, since they are the most explicit intersection between the “national” and “international” dimensions of scientists’ activities. Their location, program content, and accompanying exhibitions are negotiated by scientists from various countries. At the same time, congresses provide ways for host country scientists to advance local agendas and to enhance the visibility of their disciplines in the eyes of domestic patrons (often leading to fierce competition among national communities for the chance to host them).

Specifically, we examine attempts to host an international congress in applied mechanics in Germany in the 1930s and early 1940s; an international genetics conference in the Soviet Union in the 1930s; and an international astronomical congress in the U.S. in the 1950s. In the German case, a proposed 1942 meeting of the International Congress for Pure and Applied Mechanics, sought by the leader of the Kaiser-Wilhelm-Gesellschaft (KWG) Institute for Aeronautics Research, was rejected by foreign colleagues because the National Socialist state forbade German and foreign Jews from attending. In the Soviet case, the government canceled the scheduled 1937 Seventh International Genetics Congress in Moscow because Politburo leaders doubted the congress would provide the anticipated propaganda windfall. Finally, in the U.S. case, the state sought to prevent scientists from “unrecognized regimes” (particularly

Communist China) from attending a scheduled meeting of the International Astronomical Union in California in 1961. In each case, we explore the continuous negotiations over the issues of these congresses between the scientists of the host country and their state patrons on the one hand, and between the scientists and their foreign colleagues on the other.

Despite the differences in time periods and scientific disciplines, each of these case studies shares one significant common trait: the overriding influence of the state as patron.<sup>5</sup> In the 1930s, the German and Soviet states were the primary patrons for science within these nations. By the 1950s, the same had become true for American science. All three cases demonstrate how the influence of state patronage undermines the classic formulation of the ideology of scientific internationalism-- that “the participation of the nation in the scientist’s fame spares the scientist any conflict between advancing his science and advancing the interests of his nation.”<sup>6</sup>

Although local, political and ideological contexts vary significantly among these cases, other similarities may be noted. Both the German and U.S. governments stressed ideological issues of great national concern at the time (racial policies in Germany, anti-Communism in the U.S.). The prestige value of science caused leaders in two of these states (Stalin and Eisenhower) to become directly involved in them. In all cases, scientists promoted “nationalistic” advantages for hosting scientific congresses to state officials, recognizing that the state could both encourage and limit “international science” depending on its concrete goals (the Politburo first endorsed, then canceled, then reinstated the genetics congress; the U.S. government after the launch of Sputnik in 1957 encouraged increased interaction with Soviet scientists even as it sought to

isolate Communist Chinese researchers). Ultimately, in all three cases the actual decision not to hold an international congress in a particular country rested with the international community. The community's perceptions of and reactions to particular events and policies in the prospective host countries attest to the persistence of an important component in international science ideology—the ideal of science as being above and beyond politics.

The three cases that we consider here have remained poorly understood until now. To shield evidence of political compromises from foreign colleagues, and to preserve the illusion that core values of “internationalism” had not been compromised, these stories were generally known only to the top leaders of the respective disciplinary communities. This article is therefore built on intensive archival research.

## **Germany**

As the Weimar era closed with Hitler's appointment as German Chancellor in January 1933, bringing the National Socialists to power, German scientists began experiencing profound challenges in maintaining contacts with colleagues in other countries. The passage of the Civil Service Law of April 7, 1933 (forming the basis for discriminating against all individuals at universities and research institutes who were even partly Jewish or ‘politically unreliable’), impacted all scientific fields in Germany, causing a mass exodus of scientific workers abroad.<sup>7</sup> Germany's scientific standing and its role within international scientific bodies were buffeted by these developments, heightening its postwar isolation following the International Relations Council's 1919 decision to ban German and Austrian membership and the hyperinflation of the Reichsmark in 1923.<sup>8</sup> While Nazi officials recognized hosting international events could enhance the prestige of the new government – for instance, the 1936 Olympic games in Berlin – the state

saw little value in promoting international scientific activities. After Germany left the League of Nations in 1936, the state forbade its scientists from any contacts with the League's scientific program.<sup>9</sup>

The challenge of maintaining a German presence in international science was especially felt within the International Congress for Pure and Applied Mechanics (ICPAM), the scientific body for researchers working on turbulence theory, theoretical aerodynamics, dynamical meteorology, and applied flight dynamics. Rising anti-Semitism had inspired the Hungarian-born Theodore von Kármán, the turbulence expert who had headed the Aerodynamics Institute at Aachen, to accept Caltech's 1929 offer to direct its newly-established Guggenheim Aeronautical Laboratory.<sup>10</sup> In 1933, Richard von Mises of the Institute for Applied Mathematics at Berlin, a leader in the Germany Society for Applied Mathematics and Mechanics (GAMM), ran afoul of the Professional Civil Service Law. Although von Mises could have secured an exemption, he left Germany to accept an endowed professorship in Istanbul. These emigrations left only one senior German representative on the International Committee (IC) of the ICPAM: the Göttingen-based aerodynamicist Ludwig Prandtl.

Prandtl had long sought to bring an ICPAM meeting to German soil. Founded by his former protégé von Kármán in 1922, the Congress had met formally in Delft (1924), Zürich (1926) and Stockholm (1930). By 1924 national adherents included Holland (150 members), England (59), the USA (17), Germany (103), Italy (37), and the Soviet Union (10).<sup>11</sup> Aviation developments depended upon such critical disciplines as fluid dynamics, turbulence theory, and pure and applied mechanics. Although the Versailles Treaty had limited German aviation to

lighter-than-air ships, its industries had begun developing fixed-wing aircraft as well by the early 1930s. Germany's basic and applied mechanics research was world-renowned.<sup>12</sup>

In 1934, Prandtl worked to bring the 1938 applied mechanics congress to Germany. Early that year, he shared this desire with officials in the Reich Propaganda Ministry. While many members wished to meet there, Prandtl argued, new racial laws threatened this plan: foreign Jewish colleagues, even those "extraordinarily qualified," would be barred from Germany. Prandtl successfully secured an exemption for *all* international ICPAM members. Hosting this meeting would "showcase the new Germany," the Ministry declared, and "working under the flag of science would bring us successfully to our goals."<sup>13</sup> But just before the 1934 ICPAM meeting convened at Cambridge University, the bloody "night of the long knives" purge occurred. Prandtl realized the Congress's IC – its Western members already distressed by swelling ranks of refugee Jewish scholars – would likely reject a German invitation as a result. He thus presented its invitation for the 1938 conference with little fanfare, intending Germany to be the leading contender for the *subsequent* 1942 meeting. Perhaps by then, he explained to a Swiss colleague, some of Germany's racial difficulties "that are difficult in the moment could be smoother."<sup>14</sup> Showcasing German achievements in aerodynamics was not his only motivation: as he advised the Foreign Ministry in December 1933, national aeronautical research would be endangered by yielding to Reich officials convinced that Germany needed to avoid foreign meetings entirely rather than meet with foreign Jewish scientists.<sup>15</sup>

In Cambridge, the IC indeed declined Germany's 1938 invitation. It also declined von Mises's offer to meet in Turkey, preferring a U.S. proposal to meet at MIT. Following past

practices, IC members Committee formally placed Prandtl's and von Mises' applications in its files, expressing hope that they would be renewed later.<sup>16</sup>

Pleased by the IC's vote, Prandtl began planning for the 1942 congress. During the mid-1930s, Prandtl's standing within Nazi Germany steadily increased. President of the influential Lilienthal Society for Aeronautics Research, recipient of numerous national awards, Prandtl was nearing the zenith of his career. As Germany's leading expert in fluid dynamics, Prandtl gained new responsibilities as the Air Ministry became more openly engaged in formerly secret military aviation. Self-confident and politically savvy, Prandtl became a critical figure in the emerging nexus of academic scientists, arms technologists, and the state's war ministries. In 1937, Prandtl, then 62, became head of his own independent KWG Institute for Aeronautics Research.<sup>17</sup> Despite his expanding political authority, however, Prandtl found it difficult to prepare Germany's bid for the mechanics congress. Material shortages and state control of foreign currency was one problem. But the bigger challenge he faced was persuade the German Education Ministry to acknowledge the value of international scientific cooperation.

Five months before the next IC meeting, scheduled for the start of the 1938 assembly, Prandtl again turned his attention to Germany's invitation for 1942. Initially Prandtl seemed discouraged. The central problem remained: would Germany's racial policies prevent all Jewish scientists – foreign and German – from participating? Prandtl felt especially troubled by the case of Hans Reissner. Reissner's forced resignation in 1936 from two distinguished posts (head of the German Aviation Committee and Distinguished Professor of Engineering in Berlin) deeply worried his non-German colleagues.<sup>18</sup> Another looming problem was a proposed merger between



GAMM and the German Engineering Society (VDI). VDI leaders were strongly anti-Semitic, and wanted to oust remaining Jewish members from GAMM.<sup>19</sup> Prandtl had opposed removing Jewish engineers from his own Institute, and he seemed personally distressed at the fate of Jewish engineers that he knew. But Prandtl made no strong stand against these decisions; indeed, he tried to smooth over relations with the powerful VDI, and quietly allowed the names of Jewish GAMM members to be deleted.<sup>20</sup>

Prandtl was especially perturbed when state actions threatened to become public and visible, thus undermining his hopes for Germany's role in 1942. Privately Prandtl voiced frustration with the VDI, which refused to print or acknowledge books written by non-Aryans – a viewpoint proudly advertised in their publications. Even in 1938 GAMM's membership remained more than 32 percent foreign, and its journals sold well in foreign countries. The idea of not reading an important book simply because of an author's race, he wrote a friend, was absurd, and awful publicity.<sup>21</sup> In May 1938, Prandtl informed GAMM's president that he would cease trying to bring the 1942 Congress to Germany if the VDI persisted in its efforts, since these undermined fundamental requirements for international meetings. "I wonder at all what kind of a profit we might gain with the Congress under these circumstances," he lamented. The VDI's actions recalled to him unpleasant memories from twenty years before, when similar declarations had forged a Western block united against Germany.<sup>22</sup>

Unknown to Prandtl, opposition to Germany's hosting the 1942 Congress was growing outside Germany. The chief opponent was Prandtl's former student, Theodore von Kármán. Appalled by National Socialist politics and himself an émigré, von Kármán was especially aware

of Jewish scientists fleeing Germany. Yet he did not seem particularly concerned about 1942 meeting plans until March 1938. This may have been because he knew little about Prandtl's efforts. While von Kármán (along with MIT aeronautical engineer Jerome Hunsaker) shared responsibility for organizing the 1938 Massachusetts meeting--and von Kármán had corresponded with Prandtl about such issues as symposium speakers and transaction publications--the sensitive topic of the 1942 meeting venue had not come up. Nor did von Kármán have direct knowledge of recent German developments. Although Dr. Adolph Bäumer, director of aeronautics research in Hermann Goering's new Air Ministry, wanted him to return to Germany as a consultant, von Kármán had not visited his former home since 1934 and had little contact with key German aeronautics researchers.<sup>23</sup>

Why did von Kármán seek to derail the anticipated German invitation? He did not impugn the quality of aerodynamic research in Germany in his correspondence; nowhere did he suggest that pure or applied mechanics had been intellectually damaged by the rise of National Socialism. Instead, he thought deliberately excluding Jews from the practice of science and engineering perverted the ethical foundations of science. For von Kármán, this also meant that the state had become too deeply intertwined with scientific affairs. (Unlike Prandtl, von Kármán did not contact the U.S. Department of State or any other governmental body about the ICPAM conferences. For him, international science undertakings were handled best *between* scientific groups.)

He most clearly expressed his frustrations in a May 31st letter to his Harvard colleague J. P. Den Hartog. Having just learned of von Mises' intent to formally invite the ICPAM to

Istanbul in 1942, von Kármán glumly predicted that Bäumker would certainly “present a very official invitation to Germany”—an untenable option. Yet he found no happy alternatives. Congresses had already been held in Holland, Switzerland, and Scandinavia. Belgium and Italy had little interest in aerodynamics. Austria was now out, since it “was absorbed by Germany.” France posed a problem because of its growing conflict with Germany. For that reason, von Kármán demurred, despite Turkey’s remoteness, “it seems to me that the Turkish proposition is not so bad.”<sup>24</sup>

Responding several days later, Den Hartog thanked von Kármán “for letting me in on this conspiracy.” Den Hartog also preferred a congress in Turkey. Nor did he see any choice *other* than Turkey or Germany, because of well-established precedents. Like von Kármán, Den Hartog did not perceive strong anti-Nazi feelings among the ICPAM’s leaders, and worried that the 1938 vote could indeed tilt towards Germany. Of the IC members, Den Hartog thought them split almost evenly into pro-German and anti-German camps. The Stanford engineer S.P. Timoshenko (a U.S. IC member) had “suffered at the hands of the Bolsheviks and there he is now *ideologically* in sympathy with the anti-Comintern pact. Of the Dutch people, I know that Burgers is a Communist, and about Biezeno I know nothing.” The issue was hardly decided for Germany, Den Hartog concluded. But “it is evidently a question of ideologies, on which most people have their minds made up in advance.”<sup>25</sup>

Den Hartog raised an idea in his letter that von Kármán immediately seized upon: that von Mises’ invitation from Istanbul be *non-governmental*, to distinguish it from the formal invitation anticipated from the German government. On June 9<sup>th</sup>, von Kármán advised von Mises

that heightened political tensions made it preferable “that the Congress should be non-political, and would prefer an invitation from scientific institutions rather than the government.” In this way, von Kármán hoped to defeat the “somewhat pro-Nazi leaning” MIT—an unmistakable reference to Hunsaker.<sup>26</sup>

Von Kármán’s letter to von Mises had immediate impact. Living on the U.S. West Coast, von Kármán’s physical isolation from Hunsaker was only slightly less than that from foreign IC members. Von Mises swiftly wrote Burgers and Biezeno, leaders of the Dutch delegation and among the IC’s most senior members, who in turn sent a forcefully worded letter to Hunsaker. Burgers and Biezeno declared they would vote against “every Country where the members of our Congress will be treated in different ways, and where they will be subjected to considerations which have nothing to do with the only real point: their scientific competency.” Their reference was unmistakably to National Socialist treatment of Jewish scientists. But they also argued against Turkey, which was “rather as remote as America,” noting their preference for a meeting “in the centre of Europe.” Their aim in writing was to “avoid political discussions which menace the International Cooperation that, up to now, has been maintained.”<sup>27</sup>

This letter from Burgers and Biezeno marked a turning point in this emerging, unprecedented conflict among IC members. Forced to respond, Hunsaker for the first time considered venues other than Germany or Turkey. In contrast to Den Hartog, Hunsaker allowed that the ICPAM was an “informal body,” and thus had few restraints with regard to future meetings. His “personal view” was that “a Congress in Turkey would not be well-attended, but one in Germany would be. However,” he added, “I believe more Americans would go to

France.” He also saw (independently of von Kármán) “serious objections to an invitation from a government” rather than from a university.<sup>28</sup>

In Germany, Prandtl’s main concern remained demonstrating to other Western nations Germany’s willingness to allow Jewish researchers to take part in ICPAM activities. On June 1<sup>st</sup>, Prandtl again asked the Foreign Office of the Education Ministry to guarantee that Reissner could travel abroad. His presence at the MIT congress, Prandtl declared, would show that non-Aryans continued to work under National Socialism, and help persuade non-Aryan IC members to select Germany for 1942. Were Reissner not allowed to travel, he repeated, Germany’s chances of success would plummet.<sup>29</sup> To his close colleague, the Dresden mathematician Friedrich Willers, Prandtl denounced new anti-Semitic declarations from the German Engineering Society: “For the VDI, the primary thing today seemingly is politics and not science.”<sup>30</sup> In a stern letter to the VDI director, Prandtl objected to the VDI’s new call to purge foreign non-Aryans from its membership lists. Nevertheless, his call was not a principled stand, but, as before, anxiety over appearances. Because German non-Aryan members would no longer appear at pure-German scientific meetings anyway, “fearing political difficulties,” Prandtl demanded that the VDI refrain from actions that might harm Germany’s chance to host the 1942 Congress, thus damaging German prestige. Apparently confident that he could forestall or at least postpone the VDI’s plans, Prandtl optimistically queried whether Berlin or Munich would be the meeting’s best venue.<sup>31</sup>

Whatever optimism Prandtl had about Germany’s future role in hosting the ICPAM ebbed before he sailed to America in late summer 1938. Increasingly Prandtl found his primary

frustrations not with the VDI's pro-Nazi leadership but rather with the state. In his dealings with Nazi ministries, Prandtl sought to disguise actions based on Nazi race policies that would be noticed by foreigners. Prandtl sent the Ministry a warning on June 15<sup>th</sup>, arguing the international structure of the exact sciences could not be managed in the same way as German domestic politics. Angrily, Prandtl argued that winning the right to host 1942 ICPAM conference was critical to Germany's international scientific prestige and to Germany's continued access to the special skills of foreign aerodynamicists. Advances in science depended on cooperation between nations: hence, editing out the legitimate contributions of non-Aryans would hurt the state even if it conformed to Nazi policy. Because international cooperation in science was 'a living necessity for Germany,' Prandtl demanded the chance to address this issue with the Führer's deputy "or also speak to the Führer directly."<sup>32</sup> Prandtl instead received more political instructions. The German Congress Office (established in 1934 as a branch of Goebbel's Propaganda Ministry to control international meetings inside Germany) demanded that Prandtl come to Berlin at soonest convenience to be briefed on methods to turn the proposed 1942 conference "into an instrument of German culture-propaganda."<sup>33</sup>

Prandtl clung to one remaining hope: if the state guaranteed that *all* participants could attend, IC members anxious to gain access to Germany's burgeoning aerodynamics research would welcome its proposal. Since he had secured this in 1934, Prandtl pressed Reich ministers once again. (He wrote, as he apparently did with all state officials, using his authority as a senior professor at Göttingen and IC leader rather than as a KWG director.) Two mid-summer developments buoyed his optimism. He received from the President of the Supreme Court of the Reich, the politically moderate Dr. Erwin Bumke, a declaration that all foreign attendees at

international congresses within Germany's borders would be treated "with expected international politeness." Relieved, Prandtl quickly forwarded a copy to Biezeno. He also felt more confident after receiving news from Grammel, recently returned from a meeting with Biezeno in Holland. Grammel now felt convinced that the mood of the IC was "wholly favorable" to a meeting in Germany "if assurance is given in compulsory form that the Congress would be open to each expert who wanted to take part in it, without regard to race, not only for foreign members but also German non-Aryans." On August 7, 1938, Prandtl dispatched another long letter to the Education Ministry requesting just such a statement.<sup>34</sup>

In fact, both Grammel and Prandtl had badly misread the mood of their foreign colleagues. While Prandtl believed that Bumke's declaration would reassure Germany's critics in Western Europe and America, it had the opposite effect. On August 5<sup>th</sup>, two days before Prandtl appealed to the Education Ministry, Biezeno had written Prandtl for the first time about the 1942 conference. His views (shared by Hunsaker, von Kármán and von Mises) were not what Grammel had inferred. "The 'Aryan - non-Aryan' difference that now has universal validity in Germany -- as the pamphlet enclosed with your letter attests, where it states that non-Aryan foreigners will be welcomed in the same manner as Aryans -- stands for us in contrast to the ideals that international scientific congresses must strive for in their utmost." Biezeno and Burgers thus found it impossible to support holding the next mechanics congress meeting in Germany.<sup>35</sup>

So deeply did Prandtl believe that he was a progressive, moderating figure within the Third Reich that he continued to expect, even after receiving Biezeno's letter, that he could

nevertheless persuade the IC towards Germany in 1942. (Ever more isolated from his foreign colleagues, Prandtl also remained unaware of growing American opposition.) But despite his determination, Prandtl failed even to sway the state to formally renew its 1934 pledge to permit non-Aryan experts, both foreign and German, to attend the proposed congress. On August 20<sup>th</sup>—less than two weeks before his scheduled sail from Bremerhaven – he received from the Education Ministry a curt note. Because “the Jew-problem in Germany is an exclusively inner-German issue,” foreign non-Aryans could enter Germany, but “German science in international congresses can only be represented only through Germans, not however through Jewish scientists.”<sup>36</sup> Striking an exclamation mark besides this sentence, Prandtl tried one last time. “Thank you for your swift response,” he wrote. “Unfortunately the answer is so wrongheaded that the exclusion of German non-Aryans would eliminate the chances of bringing our invitation to success.” Although Prandtl dispatched this note by express messenger, he received no answer before he arrived in Massachusetts on Sunday, September 10<sup>th</sup>, as Hunsaker’s houseguest.<sup>37</sup>

Von Kármán seemed jittery as the IC meeting opened. But Prandtl almost certainly recognized his proposal was doomed. On Wednesday, September 13<sup>th</sup>, sitting in the President’s Office at MIT, IC members reviewed three invitations: in addition to Turkey’s and Germany’s, M. Métral (representing the French applied mathematician Jules Drach), delivered a new invitation from the Société Française des Mécaniciens in Paris. The fourteen participating IC members affirmed their vote for France without dissent. As Hunsaker later explained, the French invitation was “exactly in the form preferred by the Committee, i.e., from the French members to meet in Paris in 1942... It seems the consensus of opinion that the Sixth Congress should be held in an academic rather than in a governmental atmosphere.”<sup>38</sup>



National Socialist racial policies ultimately became the decisive factor for IC members determined to scuttle Germany's bid for the 1942 congress. By September 1938, no IC member outside Germany likely supported Prandtl's plan. Prandtl himself seemed to recognize that his nation no longer supported scientific internationalism. Moreover, after returning home, Prandtl defended conditions in Hitler's Germany and its foreign policy. He also gave some anti-Semitic resentments free reign, likely keeping the Munich Treaty and National Socialist letter censors in mind. "On the Jewish question," he wrote, "one cannot speak without stressing that Germany is not so far removed from becoming just as subjugated by the Jews as the Soviet Union was subjugated by them many years ago. For years one can see with ever more clarity that the Jews, Communists, and Free Masons (masonry) are working together and foment unrest among the people, one openly, one in secret, but all working in the same direction. Why? With the Communists, it is obvious that they are led by the Jews... Anyhow, the fight, which Germany unfortunately must lead against the Jews, is necessary for its self-preservation. It is regrettable that very many Jewish scientists, who had no part in this oppression, have to suffer from it, and many in Germany wish that things had not gotten to so harsh a point."<sup>39</sup> Despite his contributions to a technological field central to the state's national security, the concessions he ultimately won for scientific practice were minimal. International prestige did not sway the National Socialist state.

### **The Soviet Union**

Starting in 1930, the Soviet Union hosted a number of international scientific meetings, including the Second International Congress of Soil Scientists (1930), the Fourth International Conference on Hydrology (1933), and the Seventeenth International Geological Congress

(1937). This stood in sharp contrast to the Fascist attitude toward scientific meetings in National Socialist Germany. The Soviet government lavishly funded each of these gatherings and the Soviet press covered them at every turn. The fate of the VII International Genetics Congress scheduled to meet in Moscow in late August of 1937 proved entirely different.

Soviet geneticists had been trying to invite the congress to Moscow since the first post-war genetics congress convened in 1927 in Berlin. The Soviet government had continuously endorsed their efforts. Finally, in the spring of 1935, the Norwegian geneticist Otto Mohr, chairman of the International Organizing Committee (IOC) for Genetics Congresses (composed of representatives of 15 countries), notified the Soviet representative Nikolai Vavilov that the IOC was ready to consider the invitation. Vavilov immediately began lobbying various state agencies. As a result of his efforts, in late July the highest governing bodies of the Communist party—its Orgburo and its Politburo presided by Joseph Stalin—permitted the USSR Academy of Sciences to host the congress. They also instructed the Science Department of the Party's Central Committee to prepare suggestions regarding the organization and membership of the congress.<sup>40</sup>

At the end of August, Vavilov informed Mohr that he had secured the government's support. That November the IOC voted unanimously for holding the congress in Moscow. By year's end, with the Politburo's approval, a local organizing committee was set up to include leading geneticists: Nikolai Vavilov (vice-chairman), Nikolai Kol'tsov, Georgii Karpechenko, Solomon Levit (executive secretary), Aleksandr Serebrovskii, and Hermann J. Muller (head of the program committee).<sup>41</sup> The committee also included a number of officials from the Academy

of Sciences—its soon-to-be president Vladimir Komarov (vice-chairman) and its “CEO”, Lenin’s former secretary Nikolai Gorbunov—and from the Academy of Agricultural Sciences (VASKhNIL): president Nikolai Muralov (chairman), vice-president Georgii Meister, and a notorious young academician, Trofim Lysenko. The committee went to work at once.

On April 23, 1936 the committee held a meeting, prompted by the request of more than 30 American geneticists who had asked the organizers to include in the program a “discussion of questions relating to racial and eugenic problems.”<sup>42</sup> The request presented a certain problem for the organizers, for in the Soviet Union eugenics had come under heavy political attack and had been banned in the late 1920s. In 1930, both the Russian Eugenics Society and its oracle—the *Russian Journal of Eugenics*—had been dismantled.<sup>43</sup> Not surprisingly, the organizers decided that “reports on the disciplines related to genetics” should not be included in the program. They agreed, however, that the last session of the congress should be devoted to the discussion of “human genetics and race theory,” omitting any mention of eugenics and “eugenic problems” altogether.<sup>44</sup>

In September, the governing body of the Academy of Sciences—its presidium—listened to Muralov's report on the actions of the organizing committee and approved its plan of preparations and a preliminary scientific program.<sup>45</sup> A few days later, Muralov and Levit sent a lengthy memorandum on the congress's scientific program to the Science Department.<sup>46</sup> The memorandum listed six major subjects to be discussed at the congress: (1) evolution in light of genetic research; (2) plant genetics and breeding; (3) animal genetics and breeding; (4) genes, mutations, and structural bases of heredity; (5) distant hybridization and polyploidy; and (6)

human genetics and racial theories. It also named Soviet and foreign geneticists invited to deliver plenary reports on these subjects. The Science Department endorsed the program. By mid-October, the organizing committee had received responses from nearly 900 geneticists from almost 40 countries. The United States delegation (369 members) was the largest planning to come, followed by Britain (83), then Germany (82), Canada (32), Japan (25), Sweden (22), Holland (20), China (16), France (15), Switzerland (15), Poland (14), and India (13).<sup>47</sup> Everything seemed to be going smoothly.

Suddenly, on December 14, 1936, *The New York Times* published a “wireless” dispatch from its Moscow correspondent: “The Seventh International Congress of Genetics which was to have been held here next August ... has been canceled by order of the Soviet Government, it is learned unofficially.”<sup>48</sup> The *Times* information was correct. Exactly a month before the publication, on November 14, the Politburo had indeed canceled the congress. But the dispatch covered more than just the cancellation. It also announced that the president of the forthcoming congress, Vavilov, had been arrested, and the congress’s general secretary Levit had come under heavy critique by party officials. It provided what seemed to be the reasons for canceling the congress: “An interesting story of a schism among Soviet geneticists, some of the most prominent among whom are accused by Communist party authorities of holding German fascist views on genetics and even being shielders of ‘Trotskyists’, lies behind the cancellation. The fact that so many of the Soviet Union's most distinguished geneticists are under fire is believed to be motive for the government action.” The “schism” the article referred to was an ongoing controversy on the “issues of modern genetics” between two groups of Soviet agriculturists, each headed by a member of the congress's organizing committee—Vavilov and Lysenko.<sup>49</sup> The

controversy had been going on for almost a year and was coming to a head exactly at the time of the *New York Times* publication: on December 19 an open discussion between the two groups was to begin at a session of VASKhNIL.

The news spurred Western (particularly British and American) geneticists into immediate action. They sent letters to Soviet ambassadors and asked their own state officials to exert pressure on the Soviet authorities. Although both British and American diplomats decided to stay clear of the issue, their Soviet counterparts immediately forwarded all the letters to Moscow, where this active campaign apparently made an impression. On December 22, *The New York Times* reprinted an editorial from a central Soviet newspaper, *Izvestiia*, which stated that the congress had not been canceled, but merely postponed at the “request of a number of Soviet geneticists” and that Vavilov had not been arrested. It also claimed that the USSR was the only country where scientists were truly free. Unbeknownst to its readers, *Izvestiia*’s article was edited by Stalin himself. In the following months, Soviet geneticists secured the Politburo’s permission to host the congress in Moscow a year later, in August 1938. But soon thereafter, the IOC decided to relocate the congress to Britain and to hold it in August 1939.

What interests did the Soviet state pursue in hosting the genetics congress? Soviet authorities had initially been very enthusiastic about the congress and had been prepared to spend 4-5 million rubles [roughly \$160,000 1935 U.S. dollars] on its organization. The major goal of such spending was certainly not genetics per se, but propaganda. In the 1930s, the Politburo promoted international scientific meetings in the USSR to showcase abroad the advances of the first socialist country in science, education, and medicine. Scientists were well aware of this goal

and used it extensively in their negotiations with their patrons in the party-state apparatus. For example, in his report to Molotov in summer 1936, Muralov recounted the benefits the Soviet Union would reap from hosting the congress, particularly “a great importance of informing foreigners about the status and advancements of science in the USSR.”<sup>50</sup>

So, what could have happened that induced the Politburo to cancel the congress, and therefore miss the opportunity for extensive propaganda? The full text of the November 1936 Politburo edict read: “to revoke the decision of the Central Committee of August 2, 1935, and to cancel the convocation of the VII international genetics congress in the USSR in 1937, due to [its] obvious unpreparedness.”<sup>51</sup> What was it exactly that, in the Politburo’s opinion, was “unprepared”? Perhaps this decision referred to the paperwork for the congress, such as drafts of SNK decrees, which should have been agreed upon by all the state agencies involved. Judging by available documents, there were at least several problems of this sort. For instance, the Commissariat of Finance (expectedly) could not agree with the organizing committee’s estimates for the congress budget. Similarly, Gosplan (the State Planning Administration) also raised a number of objections and sent back several drafts prepared by Muralov and his staff.<sup>52</sup>

It is possible, however, that what was not prepared was not just the paperwork, but the entire “genetic show.” A centerpiece of the show was supposed to be a brand-new Institute of Genetics of the Academy of Sciences, whose construction had begun in Moscow in April 1936. But according to a letter the institute's scientific secretary sent to Gorbunov in November, “The buildings and greenhouses will not be ready on time and this will undermine the major material base of the Congress. ... These circumstances ‘could create a bad impression,’ namely, that in

socialist society science develops ‘worse’ than in capitalist one.”<sup>53</sup> Another very important part of the show was supposed to be the All-Union Agricultural Exhibition, aimed to present the advancements of the Soviet Union's widely proclaimed “collectivized” agriculture and agricultural sciences, including genetics. The exhibition—Vavilov served as head of its scientific program--was scheduled to open at the beginning of August 1937, just a few weeks prior to the congress. The opportunity for the congress’s participants to visit this exhibition had been widely advertised from the very moment the decision had been made to hold the congress in Moscow.<sup>54</sup> But the exhibition also was not nearly ready. Characteristically, a few days after the Politburo had decided on transferring the congress to August 1938, they also approved a new opening date for the All-Union Agricultural Exhibition—August 1, 1938.<sup>55</sup> It seems likely that it was the “unpreparedness” of these institutions that inspired the Politburo’s decision.

Although the “unpreparedness” was probably a major reason for canceling the congress, it was certainly not the only one. In their communications to Western colleagues Soviet geneticists repeatedly denied the *New York Times* statement that the cancellation of the congress had in any way been related to their disputes with Lysenko and his supporters. Yet, Lysenko's campaign against “formal” genetics (which reached its peak at the December VASKhNIL discussion), particularly his personal attacks on its leaders, Vavilov, Kol'tsov, Levit, and Serebrovskii--all of whom were members of the congress's organizing committee--might well have played an additional role in creating within the Politburo both the atmosphere of doubt regarding the “readiness” of the congress and the mistrust for its organizers.

As Vavilov suggested in his letter to Mohr in January 1937, one more factor may have

influenced the Politburo decision: the inclusion in the congress's program of the discussion on "human genetics and race theory."<sup>56</sup> At that time in the newspeak of party ideologists the very words "race theory" had clear "fascist" overtones, and the whole issue of human genetics acquired a "fascist" veneer in the eyes of party officials. At the time of the *New York Times* publication, several Soviet geneticists, notably Solomon Levit, became targets of severe critique by the party officials for adhering to "fascist" views on human genetics. One of the most ardent critics was Ernst Kol'man, head of the Science Department of the Moscow City Party Committee, who published in *Under the Banner of Marxism* an article that viciously attacked Levit and his co-workers at the Institute of Medical Genetics. On November 5, 1936, he also sent (outside of channels) an extensive memorandum to Molotov with "information on the situation on scientific front."<sup>57</sup> The memorandum's central theme was "the recent sharpening of the class struggle on our scientific front." As a major problem, Kol'man listed "the fascisization of scientific theory" and named Levit as one of the main proponents of such "fascisization." "This has a particular significance," he explained, "because Levit is the secretary of the organizing committee of the international genetics congress." "The convocation of this congress here in 1937 is absolutely unprepared," Kol'man continued, "for a better half, the congress's composition promises to be fascist, and there is a complete theoretical disarray among our geneticists." Molotov attentively read Kol'man's memorandum and underlined with red pencil the above quoted passages. Perhaps this denunciation also played a role in deciding the fate of both the congress and its general secretary.<sup>58</sup>

Whatever reasons Politburo members had for canceling the congress, they clearly did not expect that their decision would do more harm than good, by igniting a wide critical campaign in



the foreign press and inspiring the genetics community into bombarding Soviet officials with inquiries and angry letters. During January-March 1937, the commissar of foreign affairs Maksim Litvinov, the head of the Science Department Bauman, and the SNK head Molotov repeatedly conferred with the Academy of Sciences officials regarding the issue. In the end, the Politburo permitted geneticists to hold the congress in Moscow in August 1938. But this decision came not without cost—both the local committee’s membership and the scientific program had been completely “reorganized.” All the geneticists who had been targets of Lysenko’s attacks at the December VASKhNIL discussion (except Vavilov) were removed from the committee. The whole section on “human genetics and race issues” was dropped from the program. The list of speakers (both Soviet and foreign) invited to deliver plenary reports was revised. All these changes were made in the name of “showing the strength of Soviet science” and “upholding the state’s interests at the congress.”<sup>59</sup>

Why then did the IOC decide to move the congress to Britain? Basically, the reasons behind the IOC decision were Western geneticists’ perceptions of what was going on in Soviet genetics and why the Soviets canceled the congress in the first place. The news of the congress’s cancellation stirred quite a commotion among Western geneticists, but their reaction to the news varied significantly, according to individual political sympathies, scientific interests, and institutional agendas.

For a start, the cancellation provided an opportunity for some other national group to step in and to host the congress. Not surprisingly, several European communities tried to seize this opportunity.<sup>60</sup> Francis A. Crew’s offer to host the congress at his Institute of Animal Genetics in

Edinburgh proved successful, despite the initial opposition by many British geneticists, including the British representative on the IOC J. B. S. Haldane.<sup>61</sup> Crew's efforts to have the congress in Edinburgh were certainly motivated by his desire to improve his own and his institute's rather modest and peripheral standing within the British genetics community.<sup>62</sup>

However, the IOC acceptance of Crew's invitation was shaped by an entirely different set of motives. In September 1939, reporting on the congress's work in Edinburgh, Crew observed: "The chief qualifications demanded of those who undertake the organization of an international scientific conference in these days would seem to be an unwarrantable optimism and a complete disregard for current political events."<sup>63</sup> Yet, in their attempts to set up the international congress in Moscow, geneticists had found themselves repeatedly caught in the "force field" of political tensions among Hitler's Germany, Stalin's Russia, and Western democracies.

Many Western geneticists viewed the situation in Soviet genetics through the prism of German genetics and considered the situation in both countries very similar. As prominent US geneticist Robert Cook noted in his letter to Soviet ambassador Troyanovskii: "We cannot avoid expressing our regret that Soviet Union scientists seem in danger of being exposed to the same kind of mental crucifixion that German scientists have recently suffered under the Nazi regime."<sup>64</sup> Many Western geneticists saw the political regimes in both countries as dictatorships under which "academic freedom" could not and did not exist. They also saw (in both countries) their discipline becoming a "red-hot political issue."<sup>65</sup>

Since Hitler's ascent to power, many geneticists had watched in alarm the growing

deployment of “genetics language” in National Socialist propaganda and political programs, as well as the mounting usage of the Nazi rhetoric of Aryan race by certain German colleagues. This was why when the German émigrés Julius Schaxel and Walter Landauer had requested that the Moscow congress’s program include a discussion on “genetics as related to race theories,” leading British and American geneticists eagerly supported this initiative, as did their Soviet colleagues. All of them obviously wanted to distance their discipline from “Fascist nonsense.”

But in the mid-1930s, genetics also became a politically charged issue in the Soviet Union, largely due to Lysenko’s attack on Mendelian genetics. Lysenko’s supporters accused their opponents of incompatibility of “formal” genetics with Marxism, practical sterility, and adhering to “Fascist views” on human heredity. Given the Soviet militant anti-fascist policies at the time, the accusation of “Fascist sympathies” was particularly venomous. Characteristically, as a way to remedy the situation, Russian émigré geneticist Theodosius Dobzhansky suggested in December 1936: “it might be good if some American geneticists would compose a sort of short popular treatise on the subject ‘genetics is the opposite of a Nazi theory,’ and send such a treatise to Moscow.”<sup>66</sup>

The December discussion between Vavilov’s and Lysenko’s supporters seemed a decisive factor in moving the congress to Britain. An account of the discussion, appearing in *Nature*, characterized it as “an attack on modern genetic theory.”<sup>67</sup> By Mohr’s own admission: “the only thing which gave me a real base for the course taken was the Bulletin from the [VASKhNIL] congress of which Vavilov sent me a copy. When I had had it translated I realized that Moscow could not possibly be the proper place for a congress now.”<sup>68</sup> Mohr’s position as

the IOC chairman and the point man in communications with the Soviet committee gave much weight to his opinion. Certainly it affected other members of the IOC.<sup>69</sup>

But why did Lysenko scare Mohr so much? Obviously, not all members of the genetics community shared this fear. The U.S. representative on the IOC, Rollins A. Emerson, for instance, suggested to Mohr that “it would be perfectly proper to have both sides of the dispute presented in the papers and discussions at the Congress.”<sup>70</sup> The answer lay in what, for many geneticists, Lysenko’s attack signified: namely, the infringement by the Soviet political authorities on the sacral freedom of science. Western geneticists assumed that Lysenko’s position was supported by the Soviet authorities and represented an “official view” on genetics. As one American geneticist put it: “It is a real disaster that [the Soviets] have decided to join Germany in prescribing official doctrines to science.”<sup>71</sup> In the wake of the “troubles” with the congress in December 1936, the American Society of Naturalists voiced this concern in a special resolution that lamented “an increasing tendency in certain parts of the world to require of investigators the conformity of their research to officially prescribed doctrines.” The resolution further stated, “This society wishes to emphasize that intellectual progress is compatible only with perfect freedom in the conduct of investigation.”<sup>72</sup>

In the Soviet case, however, this “perfect freedom” was paid for by the government. Since the 1917 Bolshevik revolution, the state had been the sole patron of Russian science. Western scientists knew very well that the remarkable growth of science under the Soviet regime resulted from the lavish funding the regime afforded its scientists. They repeatedly cited the Soviet example in their lamentations about the meager conditions under which they themselves

often worked.<sup>73</sup> They wanted their own governments to support science and to assist them in their pursuits. But what they could not accept was the government's interference in their "internal" affairs. In his letter to the U.S. Secretary of State, the eminent American geneticist and founder of the U.S. Eugenics Office Charles Davenport remarked: "Men of science have two loyalties, one to their country and one to their science." But, following the classic formula of scientific internationalism, he insisted that the latter takes precedence over the former: "it is by loyalty to their science that they are best able to make discoveries and advance knowledge which is of so much value to their country."<sup>74</sup>

The Soviet government obviously thought differently. The Soviet Ambassador to Great Britain, Ivan Maiskii, stated in his answer to British biologists: "The prevailing view in the USSR is that science must not consider itself a demi-god with the right to choose its own course without any reference to the needs and requirements of the people [that is, the state]. On the contrary, the primary object of science is to serve as faithfully as possible the needs of the people."<sup>75</sup> Indeed, during the second half of 1936, through a public "patriotic" campaign against "servility to the West," the government unambiguously demonstrated to its scientists that loyalty to the Soviet Union was of much greater importance than loyalty to their science.<sup>76</sup>

### **The United States**

During the mid- and late 1930s, the U.S. government did not restrict international meetings of scientists within its borders. Participation in scientific meetings enhanced America's standing among nations and "carried the march of civilization forward," Assistant Department of State Wilbur J. Carr declared in 1937. In contrast to the Soviet Union, the U.S. provided few

funds for these gatherings; expenses were generally met by private fund-raising.<sup>77</sup> But the state encouraged its scientists to attend scientific conferences in the USSR, including the Seventeenth International Geological Congress in Moscow in 1937, and placed no restrictions on visiting foreign participants when the International Union of Geodesy and Geophysics met in Washington D.C. in September 1939, the last major multinational congress held before World War II.<sup>78</sup>

After the war ended, American scientists eagerly joined their European colleagues to resuscitate assemblies of the major international scientific unions. U.S. scientists supported meetings in war-ravaged Western European countries, aware that scarce travel funds would otherwise limit participation. Indeed, through the late 1950s, virtually all meetings of the major scientific unions convened in Stockholm, Oslo, Paris, and other European capitals.<sup>79</sup> Yet tensions soon resurfaced. U.S. astronomers initially embraced a Soviet proposal to host the 1951 General Assembly of the International Astronomical Union (IAU) in Leningrad, but rising Cold War tensions, the Korean War, and published condemnations of American astrophysicists as “learned lackeys of imperialism” by prominent Soviet astronomers (part of Stalin’s anti-cosmopolitan campaign) inspired Western IAU leaders to derail this assembly. It was subsequently rescheduled for Rome.<sup>80</sup>

What is noteworthy is that scientists themselves, rather than the state, had scuttled this planned 1951 assembly. In July 1950, despite the escalating Cold War, Truman’s Department of State had declared it “did not see any reason why you should not continue to make plans for attendance at the Leningrad meeting.”<sup>81</sup> Yet American astronomers interpreted the political

statements by their Soviet colleagues as evidence that, as with Soviet genetics, Soviet astronomy had been corrupted by ideological incursions from the state. Many had agreed with a 1949 *New York Times* editorial declaring "the Politburo, whose behest the Soviet Academy is following, is systematically carrying the struggle against capitalism into every cultural field, science included."<sup>82</sup> While anxious about the fate of Soviet colleagues they knew personally, American scientists initially sought above all to rekindle their relations with Western European researchers, even German ones.

This was the last time for many years that American scientists would reject an opportunity to meet with their foreign colleagues. By the start of the Eisenhower Administration in 1953, many grew concerned that the Department of State, under attack by Congressional conservatives, might now restrict international scientific gatherings. Their suspicions soon proved justified. Eisenhower was a political moderate, but his election placed conservatives in influential posts for the first time since Franklin D. Roosevelt's election in 1932. New Department of State appointees vigorously enforced the McCarran Act of 1950 (passed over Truman's veto) allowing the government to exclude "politically suspect individuals." These appointees were deeply suspicious of U.S. scientists who maintained contacts with scientists behind the Iron Curtain. Their suspicions grew after the Soviet Union exploded its first atomic bomb in 1949 and the Rosenbergs were executed for sharing nuclear secrets in 1953.<sup>83</sup> Many extended their contempt to international scientific activities. Soon after John Foster Dulles became Eisenhower's Secretary of State, unnamed insiders attacked the Department's fledgling science office in an article in the sympathetic *U.S. News and World Report*. Their unsigned article labeled the office an "out and out stink hole of Communists." Though editors later printed

a retraction, the smear campaign succeeded. Dulles allowed the Truman-era system of science attachés to wither, and science affairs in State came to be handled by a lone, harried career diplomat lacking science training.<sup>84</sup>

Washington's actions alarmed American scientists. State efforts undercutting scientific internationalism challenged the universalist ethos of science, and there is no doubt that vehement protests voiced in the 1950s were rooted in this ideal. But this was not the most pressing motivation. Through the late 1940s, U.S. scientists recognized little competitive research was underway in Western Europe, and their belief that ideological distortions affected Soviet science made sustained contacts with Eastern Bloc scientists of uncertain value. By the early 1950s, however, U.S. scientists realized the foreign landscape was changing rapidly. Competitive new scientific institutions such as the high-energy physics laboratory CERN were taking shape, and many former research centers returned to pre-war strength. International meetings thus became particularly attractive again.<sup>85</sup> American scientists were also troubled by the so-called 'Soviet offensive' following Stalin's death in 1953. In a sudden, dramatic policy shift, the Soviet government formally joined the international scientific unions. When Soviet leaders in 1954 hosted a lavish international rededication ceremony of the Pulkovo Observatory (destroyed in the siege of Leningrad in 1941)—and again invited world astronomers to meet there with no political restrictions—U.S. astronomers grew especially anxious. What they feared most was loss of professional standing. If American researchers were barred from international scientific activities, Eastern Bloc scientists might gain control of the international scientific unions, reducing U.S. influence while limiting their ability to remain at the cutting edge of their disciplines. They also knew that U.S. visa policies reminded many Western European scientists



“of the German ‘master race’ attitude.”<sup>86</sup> By the early 1950s the Federation of American Scientists organized the Committee on Visa Problems to investigate limitations on international scientific meetings planned for the U.S. It also lobbied the state to resist conservative claims that limitations on international science strengthened the nation and demonstrated individual loyalty. Yet visa denials multiplied. By 1955 four international unions planning U.S. meetings rescheduled them elsewhere. Leading American scientists worried that these developments threatened to damage “incipient scientific relations between East and West.”<sup>87</sup>

Even after the launch of Sputnik in October 1957 shocked the nation, and elevated science’s status as a symbol of national prestige, American scientists faced continued restrictions on international congresses. But in contrast to earlier visa denial cases, these new conflicts were not widely known. One reason was that certain government efforts to undermine scientific internationalism were done so stealthily that many scientists were clueless about them. In September 1956, U.S. Ambassador Walter P. McCaughy Jr. learned from the American Embassy in Barcelona that a Special Committee session for the forthcoming International Geophysical Year of 1957-58 (IGY) meeting in Spain would include scientists from the People’s Republic of China but not the Chang Kai-Shek government in Taiwan. A politically conservative China specialist who shared Dulles’ view that support for Taiwan was a cornerstone of U.S. Far Eastern policy, McCaughy immediately contacted Taiwanese scientists, insisting that their government demand to join the IGY. At first McCaughy’s plan nearly backfired: his contacts confessed that the fledgling island nation could contribute little to the IGY. But they soon saw the light. When Taiwan ultimately joined the IGY, Mao Zedong angrily withdrew his nation, thereby denying Chinese scientists access to the largest international science undertaking of the

twentieth century. Communist China's pullout from the IGY did not owe to intra-Chinese bickering, as Western scientists suspected, but rather to a clever diplomatic ploy by the U.S..<sup>88</sup>

A similar instance of state interference involved the proposed 1961 meeting of the International Astronomical Union in Berkeley, California. The IAU was one of the strongest and most active ICSU members, critical to the practice of astronomy (more than biology or chemistry for theirs). It was also a suddenly prominent field after Sputnik. In the mid-1950s the IAU's Executive Council had accepted proposals for back-to-back meetings in the Soviet Union and the U.S. in 1958 and 1961, after the Soviet and U.S. governments both pledged to admit scientists from all nations. Otto Struve of Berkeley and Leo Goldberg of Harvard, lead organizers for the 1961 meeting, sought assurance that astronomers from the PRC could fully participate despite the absence of political relations between Washington and Beijing. U.S. astronomers recognized that mainland China—not Taiwan—was the undisputed home of Chinese astronomical research. Its Purple Mountain Observatory on the outskirts of Nanjing employed dozens of researchers and possessed instruments similar to Harvard's. Western astronomers shared personal ties with several mainland Chinese astronomers, some of whom had trained in the U.S. Initially American astronomers had not worried about the "China question," naively believing that since Taiwan was virtually bereft of astronomical research, political questions would not arise. When plans for the 1961 General Assembly had been announced in the mid-1950s, Taiwanese officials had not responded.<sup>89</sup>

Struve and Goldberg failed to appreciate the passion of Department of State leaders who believed (particularly after Communist Chinese forces began shelling the offshore islands

Quemoy and Matsu in 1958 to test Eisenhower's resolve to defend Taiwan) that the U.S. was entering a hot war in the Far East. After learning about the proposed Berkeley IAU meeting, U.S. diplomats adopted McConaughy's strategy. Walter S. Robertson, Assistant Secretary of State for East Asian and Pacific Affairs, pressed the issue with the Department's new Science Advisor, Wallace R. Brode. A chemist and foreign science expert politically in tune with Dulles, Brode worked to locate Taiwanese scientists able to assist Robertson. By April 1958, Brode identified six researchers in relevant disciplines who had fled mainland China with Chiang Kai-Shek, including Tsiang Ping-jen, a meteorologist formerly affiliated with the IAU. Taipei's Academia Sinica, now better attuned to Washington's desires, swiftly swung into action, demanding that Taiwan represent China at the Berkeley meeting. Brode then stunned Struve and Goldberg by instructing them, as official members of the U.S. IAU delegation, to vote to exclude Communist Chinese scientists "on any technicality."<sup>90</sup>

The growing crisis weighed heavily on America's leading astronomers. "I shudder to think of the consequences," Goldberg wrote Struve, "if it becomes known to the IAU that our invitation is conditioned upon the admission of Formosa."<sup>91</sup> Their dilemma: canceling the planned U.S. meeting would cede leadership of the IAU to their Eastern Bloc colleagues; but arguing against Taiwanese scientists would go against long-cherished notions of scientific internationalism. Neither scientist wanted mainland Chinese astronomers to bolt the IAU, nor did Taiwanese researchers have anything to offer contemporary astronomy. Tensions between elitist and universalist values boiled over at meetings of the IAU Executive Council in 1959. IAU Vice Presidents from the Soviet Union and Czechoslovakia urged their colleagues to reject Taiwan's application because of the island's paltry astronomical work. Yet most Council members sided

with Leiden Observatory director Jan Oort, then IAU president. “Certainly the astronomical activity in this territory appears at present to be very limited,” Oort declared. “But this is no reason for refusing admission.”<sup>92</sup> Subsequently Y.-C. Chang, President of the Astronomical Society of the People’s Republic of China, broke mainland China’s ties with the IAU. While this decision almost certainly came from Communist Party officials (the insult provided an opportunity to advance their nationalist “Great Leap Forward” campaign) Chang’s private anger flashed through China’s official statement. Admitting Taiwan to membership “is a thing which goes far beyond the scope of ‘science,’” Chang declared, “and reduces the IAU into a mere tool in the political intrigue of the ‘two Chinas.’” Struve was deeply pained by this result (Chang was his former graduate student), and Goldberg was later tormented by the chilling silence of his Communist Chinese colleagues after the Cultural Revolution began. While both men publicly defended the principle of scientific universalism, neither felt certain they had made the right choice.<sup>93</sup>

By late 1958, many senior U.S. scientists perceived a growing crisis over international scientific relations. Eyeing the IAU strife, members of the International Union of Biological Sciences’ Executive Committee voted against admitting Taiwan, declaring that such a step would “separate from membership at least one important scientific contributor,” and two international unions planning U.S. meetings abruptly shifted them to Canada and Western Europe. At the same time, the Department of State broke a forty-year precedent by refusing to pay U.S. dues to any international scientific unions that admitted members from ‘non-recognized regimes.’ The U.S. “was losing [its] international scientific prestige and leadership because we are not able to participate in the work of the international scientific unions as our scientific

stature would justify,” warned Rockefeller Institute president Detlev Bronk: “This is tantamount to arbitrary abdication of scientific leadership and prestige in favor of the Soviet Bloc.”<sup>94</sup>

Another leading U.S. scientist penned a “statement of political non-discrimination” affirming the rights of scientists “of any country or territory to adhere to or to associate with international scientific activity without regard to race, religion or political philosophy.” The National Academy of Sciences quickly affirmed it. Yet the Eisenhower Administration initially ignored these protests.<sup>95</sup>

Why did American scientists fail to make their case about scientific internationalism?

One reason was that not all U.S. scientists agreed about its value. Vocal support *for* Department of State policies came from chemists, members of the largest professional scientific discipline in the U.S. American chemists had won the bulk of Nobel Prizes in chemistry since World War II, and international chemical abstracts suggested their productivity was twice that of their Soviet counterparts.<sup>96</sup> Chemists also were more involved in industry than members of any other discipline, and the American Chemical Society (the world’s largest scientific organization) had a strongly nationalistic orientation. (The ACS charter required members to aid “the development of U.S. industries and [add] to the material prosperity and happiness of our people.”) More politically conservative than their colleagues in physics and biology, many chemists were also quick to disparage work by Communist researchers. In 1954 Joel H. Hildebrand, a Berkeley chemist then serving as ACS president, had declared, “A ‘scientist’ who joins the Communist party is an enemy of the profession.” When the Federation of American Scientists had asked the ACS to join in its protest of state policies towards international scientific meetings, ACS Executive Secretary Alden H. Emery demurred, noting that the ACS “never has had the slightest

bit of difficulty in getting into this country those persons who were to contribute to our program.”<sup>97</sup> Many U.S. chemists clearly valued the ACS more than the International Union of Pure and Applied Chemistry, then one of ICSU’s weaker and less cohesive bodies. In a major 1960 speech cleared by the Department of State, Brode argued that the ACS could if necessary take over the IUPAC’s functions for Western Bloc scientists. (International scientific organizations, Brode confided to his diary, “are a minor factor of insignificant importance to the strength of world or national science and do not contribute appreciably to understanding between nations or peoples. It is not in our national interest to promote such organizations excepting where our political interests may profit by such.”<sup>98</sup>) U.S. chemists certainly supported international science as a general principle. But early in the Cold War other professional issues concerned them more.

While many chemists tacitly supported restricting scientific internationalism as a necessary sacrifice to win the Cold War, other leading American scientists in the late 1950s more successfully challenged U.S. foreign policy. Aiding their campaign was an influx of politically moderate scientists within the White House after the launch of Sputnik shattered global faith in America’s leadership in science and technology. Responding to cries for federal action, Eisenhower had created the President’s Science Advisory Committee, whose leadership included Bronk, MIT President James Killian, and Manhattan Project leader George B. Kistiakowky. Their internationalist leanings diminished the influence of longstanding Eisenhower advisors Edward Teller and Atomic Energy Commission chair Lewis Strauss, whose deep suspicions of the Soviet Union left them little inclined towards international cooperation.<sup>99</sup> Another reason was that senior U.S. scientists now saw strength in Soviet science. The Nobel laureate I.I. Rabi (who

had interacted with Eisenhower a decade before at Columbia University) boldly declared in 1959 something unthinkable just five years before: Americans needed to face “the fact that we may never again be as strong scientifically in comparison to the USSR.” U.S. foreign policy thus was best served by involving the Soviet Union “in cooperative activities in such a way that we learn more about Soviet science and technology.” Not all Eisenhower Administration officials accepted Rabi’s judgment, yet White House analysts admitted that Sputnik had greatly altered the landscape of international competition. Although science and technology had always been symbols of national prestige, one wrote, what was new “is the explicitness with which they are recognized as political factors.”<sup>100</sup> Finally, Killian and Kistiakowsky knew that not all federal agencies were opposed to international science, and adroitly exploited these conflicts. While long-term FBI director J. Edgar Hoover despised the international outlook of scientists, CIA leaders backed multinational meetings, keenly aware of the vital information they provided for national security.<sup>101</sup> By the late 1950s the Ford Foundation—sympathetic to the CIA’s broader cultural concerns—began underwriting new international scientific programs, and paid American dues for international scientific unions blacklisted by the Department of State.<sup>102</sup>

This escalating conflict over scientific internationalism reflected a clash between two well-defined and deeply opposing sets of values: support for East-West contacts as an expression of democratic values, versus insistence that defeating Communism required sacrifices consistent with total war. Both political traditions had been nurtured in early Cold War America: the central question for both sides was whether or not science was an exceptional activity that transcended U.S. foreign policy. In late 1959 Kistiakowsky, then Eisenhower’s science advisor, successfully made “international scientific cooperation” an action item to be considered by the National

Security Council (NSC), the nation's highest policy-setting body. Kistiakowsky forcefully argued that unfettered international scientific congresses aided U.S. national security policy. In a secret draft that circulated widely within the White House, the Pentagon, and among Cabinet officials, Kistiakowsky declared that scientific internationalism had eased political tensions, fostered "evolutionary trends" favoring democratic values within Eastern Bloc nations, aided scientific intelligence-gathering, and heightened U.S. prestige worldwide. Killing support for organizations "of which Red China has become a member," Kistiakowsky concluded, constituted "gradual abdication of scientific leadership to the Soviet Bloc" and damaged America's image abroad by suggesting the U.S. restricted free speech. Speaking for the Department of State, Brode vehemently disagreed, charging that Kistiakowsky had exaggerated the benefits of internationalism while ignoring its benefits. Allowing Communist scientists to attend meetings on American soil undermined U.S. foreign policy (by giving scientists special treatment), and undercut U.S. research (since Soviet science was so intimately connected to communist ideology, formal contacts invariably benefited Communist nations more).<sup>103</sup> The issue was debated by an NSC task force at five separate sessions in 1960. During that time Kistiakowsky penned a spirited defense of international contacts that he placed in *Science*, and Brode's Priestley Medal address to the American Chemical Society rehearsed his contrary view. But apart from these two publications, neither of which hinted at the ongoing NSC deliberations, the most important debate about U.S. international science policy since 1945 was conducted entirely in secret.<sup>104</sup>

Fallout shelters, outer space policy, weapons systems development, the proposed nuclear test ban treaty, and international scientific cooperation were among the issues that the NSC



evaluated in the Eisenhower administration's final year. International science was discussed a final time during the NSC's regular 10 A.M. Thursday meeting on December 1, 1960, with Eisenhower chairing the session. After final debate among Cabinet officials and agency representatives, the NSC voted to approve Action no. 2166-b-(15), which held that "[i]nternational scientific activities relate directly and increasingly to the national security objectives of the U.S."<sup>105</sup> The NSC's action, a defeat for Department of State conservatives, ended state interference with international scientific meetings hosted by the U.S.<sup>106</sup> NSC members endorsed Kistiakowsky's argument that American scientists needed to contain Communist advances within the international scientific unions in the same way that the U.S. now sought to stem communism by cultivating support in non-aligned countries from Southeast Asia to sub-Saharan Africa. The hosting of international conferences, at odds with U.S. foreign policy in the 1950s, once again suited state needs.

## **Conclusion**

While science state patrons in both National Socialist Germany and the Soviet Union imposed restrictions on the hosting of international scientific meetings in the 1930s, the United States did not begin to do so until the height of the Cold War in the 1950s, after the state became the leading patron of science in that nation.<sup>107</sup> Nevertheless, the parallel between these cases is not exact: the U.S. remained a democracy while Nazi Germany and the Soviet Union in the mid-1930s were classic dictatorships that employed systematic and widespread use of terror. But as historian Jessica Wang has argued, the U.S. in the Cold War saw the rapid growth of loyalty investigations and self-censorship, repression of the political activities of scientists, and the creation of a social order that stressed "distrust, anomie and atomization." These were factors

that Hannah Arendt had in mind in describing the police state aim of total surveillance, even if they were present at diminished intensity in 1950's America compared to Hitler's Germany or Stalin's Russia.<sup>108</sup> While scholars have shown how state agencies such as the FBI inhibited political dissent by American scientists during the Cold War, other state agencies including the Department of State and the National Security Council played analogous though less well understood roles in shaping the involvement of American researchers in *international science* activities.<sup>109</sup> The U.S. democratic political system does not preclude comparisons with totalitarian regimes in this instance.

No single political system or state was more effective than the other in limiting the ability of its scientists to host international meetings. Both National Socialist Germany and the Soviet Union acted overtly in discouraging or postponing planned scientific meetings within their borders. Stalin's government sought greater political control over the organization and content of sessions at the Seventh International Genetics Congress. National Socialist Germany was cruder in its efforts to impose unyielding racial restrictions on German participation in international congresses. Racism was the central fixation of the National Socialists, and the state pursued this policy even at a cost. The United States, by contrast, employed more subtle diplomatic efforts to control international scientific meetings. Yet its actions arguably had the greatest impact: by the late 1950s the U.S. government succeeded in isolating Communist Chinese scientists from two of the most active international scientific activities of that era, effectively shrinking the community of international science, before post-Sputnik political shocks altered its foreign policy goals.

Ideological issues lay behind all state efforts to limit international scientific meetings, but the *kinds* of ideological concerns at stake varied widely. In the Soviet Union, state concern about providing ostensible political support for what Politburo leaders viewed as fascist-laden genetics (as opposed to Lysenko's state-supported Lamarkian views) helped stimulate state efforts to cancel the 1937 Moscow assembly. By contrast, National Socialist officials wanted scientific practices brought in line with the state's larger campaign to eliminate Jewish participation in civic life and erase positive memories of their contributions.<sup>110</sup> American authorities remained unconcerned about scientific ideas, but sought to purify U.S. foreign policy by prohibiting formal contacts with politically unrecognized regimes. Anti-Communism was the ideological basis of U.S. foreign policy, but American hostility towards internationalism in science more closely resembled Germany's fixation on racial identity than the Soviet Union's concerns with ideologically correct science, the intellectual perils of genetics, and science's value for propaganda.

International scientific meetings became a concern at the highest levels of the state. Stalin himself edited the widely-read *Izvestiia* editorial announcing that the Moscow conference had merely been postponed, and Eisenhower chaired the National Security Council deliberations over the future of international scientific activities in U.S. foreign policy. Only in Germany did the issue remain at the ministry level, perhaps because individuals at higher levels of the National Socialist hierarchy showed little appreciation of science. States that elected to limit international gatherings did so believing they faced limited costs in doing so or that such actions supported larger state goals (in the Soviet case, the decision to postpone was arguably a bureaucratic miscalculation). Only in Germany did limits on scientific internationalism threaten research

critical to military and national security concerns at the time, although Germany remained a world leader in aerodynamics and informal foreign contacts persisted to the late 1930s. States were boldest in restricting international scientific congresses for disciplines remote from immediate military applications.

For their part, many scientists keenly wanted to hold international scientific conferences in their home countries. They saw numerous advantages in doing so: it allowed them to dramatically increase their participation and influence, helped secure leadership posts in professional bodies, gave them intimate access to the latest research news and gossip from leading scientific competitors, and increased their access to patronage. Failing to host ceded those advantages to other national scientific communities. Scientists also advocated non-scientific rationales for hosting scientific meetings, including national prestige (in the U.S., science's role in promoting democratization). Short of total war, scientists were steadfast in demanding their states allow international gatherings. Scientists had few tools at their disposal to persuade reluctant states to permit such meetings, and were trapped between their allegiance to scientific internationalism and their obligations to the state. Access to patronage not controlled by the state clearly mattered. U.S. scientists succeeded in overcoming state opposition partly because they successfully secured private foundation funds. By contrast, Soviet scientists had no such option; German researchers, despite limited access to Rockefeller Foundation grants, also relied primarily on state funds.

Scientists sought to host international congresses for another reason: to demonstrate their independence from national ideologies at times when states sought to impose ideologically

correct science. In the case of Germany and the Soviet Union in the 1930s, the reaction of outside Western scientists was profoundly shaped by their desire to keep their sciences “free” from state interference. By the 1950s, as the Cold War intensified, this was no longer an option for Western scientists. For a few scientists and scientific communities, this conflict did not materialize: old-guard physicists in Nazi Germany such as Johannes Stark applauded “Aryan physics” and saw little benefit in maintaining ties with foreign physicists; two decades later, U.S. chemists also downplayed international contacts but for different reasons: they saw little scientific competition overseas and agreed with their state’s Cold War aims. But most scientists (including Prandtl, Vavilov, Struve, and Goldberg) fell in a fragile middle ground, needing sustained ties with elite colleagues in other nations to keep their research programs competitive, even as they struggled with state demands (and in Prandtl’s case, his own racial prejudices and political convictions).

Ultimately, in all three cases the actual decision not to hold an international congress in a particular country was made by the leaders of the respective international disciplinary community. The perceptions of and reactions to particular events and policies in the prospective host country by scientists outside of that nation attest to the persistence of an important component in international science ideology—the ideal of science as being “above” and “beyond” politics. Although repeatedly challenged by science state patrons the world over, this ideal remained very important in shaping international science practices during the twentieth century.

Universalism and elitism also remained important ideals for scientists, even when their

nations lapsed into political extremis and personal contacts—the central glue of scientific internationalism—were damaged by long absences. Scientists were clearly loath to abandon either ideal, but when forced to choose, contact with elite, active competitors won out over the more abstract notion of egalitarian access to international meetings. Put another way, scientists wanted to keep tabs on the competition. In this sense, scientific internationalism is an extension of familiar community practices.

## Endnotes

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<sup>1</sup> See, for instance, Seigfried Grundmann, “Zum Boykott der deutschen Wissenschaft nach dem ersten Weltkrieg,” *Wissenschaftliche Zeitschrift der Technischen Universität Dresden* 14 (1965), 799-906; Daniel J. Kevles, “Into hostile political camps: the reorganization of international science in World War I,” *Isis* 62 (1970), 47-60; Brigitte Schroeder-Gudehus, “Pas de Locarno pour la science: La coopération scientifique internationale et la politique étrangère des Etats pendant l’entre-deux-guerres,” *Relations Internationales* 46 (1986), 173-94; and Elisabeth Crawford, “Internationalism in science as a casualty of the First World War,” *Social Science Information* 27 (1988), 163-201.

<sup>2</sup> For an entry to this literature see Paul Forman, “Scientific Internationalism and the Weimar Physicists: The Ideology and Its Manipulation in Germany After World War I,” *Isis* 64 (1973), 151-80, Wolfgang Biedermann, “Zur Finanzierung der Institute der Kaiser-Wilhelm-Gesellschaft zur Förderung der Wissenschaften Mitte der 20er bis zur Mitte der 40er Jahre des 20. Jahrhunderts,” in *Wissenschaft und Innovation: Wissenschaftsforschung Jahrbuch 2001*, ed. Heinrich Parthey and Günther Spur (Berlin, 2002), George W. Gray, *Education on an*

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*International Scale: A History of the International Education Board, 1923-1938* (Westport, 1978), and Robert M. Friedman, *The Politics of Excellence: Behind the Nobel Prize in Science* (New York, 2001).

<sup>3</sup> See for instance Stefan L. Wolff, "Physicists in the 'Krieg der Geister': Wilhelm Wien's 'Proclamation,'" *Historical Studies in the Physical and Biological Sciences* 33, 2 (2003), 337-368; and Jürgen von Ungern-Sternberg and Wolfgang von Ungern-Sternberg, *Der Aufruf "An die Kulturwelt!" Das Manifest der 93 und die Anfänge der Kriegspropaganda im Ersten Weltkrieg* (Stuttgart, 1996).

<sup>4</sup> Tore Frängsmyr, ed., *Solomon's House Revisited: The Organization and Institutionalization of Science* (Canton, MA., 1990); Elisabeth T. Crawford, *Nationalism and Internationalism in Science, 1880-1939: Four Studies of the Nobel Population* (New York, 1992); Elisabeth Crawford, Terry Shinn and Sverker Sörlin, eds., *Denationalizing Science: The Contexts of International Scientific Practice* (Dordrecht, 1992); Reinhard Siegmund-Schultze, *Rockefeller and the Internationalization of Mathematics Between the World Wars* (Basel, 2001); and Frank Greenaway, *Science International: A History of the International Council of Scientific Unions* (Cambridge, 1996).

<sup>5</sup> On state influence on scientific practice see Michael Gordin, Walter Grunden, Mark Walker, and Zuoyue Wang, "Ideologically Correct Science," in Mark Walker (ed.), *Science and Ideology: A Comparative History* (London, 2003), 35-65.

<sup>6</sup> Forman, "International Science" (cit. n. 2), 152. Nikolai Krementsov, *Divided Loyalties: International Science Between the World Wars—The case of Genetics* (London, 2005).

<sup>7</sup> Ute Deichmann, *Biologists under Hitler* (Cambridge, 1996), especially 11-24.

<sup>8</sup> Kevles, "Into Hostile Political Camps" (cit. n. 1); A.G. Cock, "Chauvanism and Internationalism in Science: The International Research Council, 1919-1926," *Notes and Records of the Royal Society of London* 37 (1983): 249-288, and Biedermann, "Zur Finanzierung," (cit. n. 2).

<sup>9</sup> Dieter Hoffmann, "Zur Teilnahme deutscher Physiker an den Kopenhagener Physikerkonferenzen nach 1933 sowie am 2. Kongreß für Einheit der Wissenschaft, Kopenhagen 1936," *NTM* 25 (1988), 49-55.

<sup>10</sup> Michael H. Gorn, *The Universal Man: Theodore von Kármán's Life in Aeronautics* (Washington, D.C., 1992).



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<sup>11</sup> Prandtl, letter attachment, March 13, 1934, Archive zur Geschichte der Max-Planck-Gesellschaft (MPG-Archiv), Berlin III Abt., Rep. 61, Nr. 2146 (hereafter cited in the form **MPG-Archiv** III/61/2146); “International Congress on Mechanics Membership List, 1924,” Box 46, folder 12, Theodore von Kármán papers, Caltech Archives (hereafter **von Kármán**).

<sup>12</sup> Moritz Epple, “Rechnen, Messen, Führen: Kriegsforschung am Kaiser-Wilhelm-Institut für Strömungsforschung (1937-1945),” Vorabdrucke aus dem Forschungsprogramm Geschichte der Kaiser-Wilhelm-Gesellschaft im Nationalsozialismus, 2002; see also Epple, Karachalios, and Remmert, this volume.

<sup>13</sup> Reichsminister für Volksaufklärung und Propaganda to Prandtl, May 16, 1934, MPG-Archiv III/61/2146.

<sup>14</sup> Prandtl to E. Meißner, May 14, 1934, Prandtl to Reich Foreign Ministry, June 13, 1934, both MPG-Archiv III/61/2146, and Prandtl to R. Grammel, November 29, 1933, MPG-Archiv III/61/2145.

<sup>15</sup> Prandtl to Reich Foreign Ministry, Dec. 4, 1933, MPG-Archiv III/61/2145.

<sup>16</sup> Prandtl to Reich Education Minister, circa October 1936, MPG-Archiv III/61/2148.

<sup>17</sup> Epple, “Rechnen, Messen, Führen,” (cit. n. 12), 18, 37.

<sup>18</sup> Prandtl to Reissner, April 11, 1938, MPG-Archiv III/61/2150, and Prandtl to Dahnke, June 1, 1938, MPG-Archiv III/61/2155.

<sup>19</sup> Prandtl to Ude, April 4, 1938 and VDI to Prandtl, April 29, 1938, both MPG-Archiv III/61/2003.

<sup>20</sup> Prandtl to Willers, May 11, 1938, Grammel to Prandtl, May 10, 1928, and Weber to Prandtl, May 18, 1938, all MPG-Archiv III/61/2003; see also Epple, “Rechnen, Messen, Führen,” (cit. n. 12), 39.

<sup>21</sup> Prandtl to C. Weber, May 6, 1938, Willers to Prandtl, May 3, 1938, both MPG-Archiv III/61/2003.

<sup>22</sup> Quoted in Prandtl to Weber, May 6, 1938, MPG-Archiv III/61/2003.

<sup>23</sup> Von Kármán to von Mises, June 9, 1938, Box 46, folder 7, von Kármán, and Theodore von Kármán, *The Wind and Beyond* (Boston, 1967), 146.

<sup>24</sup> Von Kármán to Den Hartog, May 31, 1938, Box 46, 6, von Kármán.

<sup>25</sup> Den Hartog to von Kármán, June 7, 1938, Box 46, 6, von Kármán.

<sup>26</sup> Von Kármán to von Mises, June 9, 1938, Box 46, folder 6, von Kármán.

<sup>27</sup> Biezeno and Burgers to Hunsaker, July 11, 1938, Box 47, folder 7, von Kármán.

<sup>28</sup> Hunsaker to Burgers, July 29, 1938, Box 47, folder 7, von Kármán.

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<sup>29</sup> Prandtl to Dahnke, June 1, 1938, MPG-Archiv III/61/2155. Reissner did travel to the US in 1938 but did not return to Germany.

<sup>30</sup> Prandtl to Willers, June 7, 1938, MPG-Archiv III/61/2003.

<sup>31</sup> Prandtl to Ude, June 6, 1938, and Willers to Prandtl, June 10, 1938, both MPG-Archiv III/61/2003, and Prandtl to Rektor, Technical Hochschule Berlin, June 17, 1938, MPG-Archiv III/61/2152.

<sup>32</sup> Prandtl to Dames, June 15, 1938, MPG-Archiv III/61/2003.

<sup>33</sup> Deutsche Kongreß-Zentrale to Prandtl, June 22, 1938, MPG-Archiv III/61/2152, and Prandtl to Deutsche Kongreß-Zentrale, July 4, 1938, MPG-Archiv III/61/2153. Prandtl tried to dodge this meeting, claiming he had too little time before his sailing.

<sup>34</sup> Prandtl to Ministerium für Wissenschaft, Erziehung und Volksbildung, August 7, 1938, MPG-Archiv III/61/2153. For Bumke's declaration see Prandtl to Ministerium für Wissenschaft, Erziehung und Volksbildung, Aug. 23, 1938, MPG-Archiv III/61/2153.

<sup>35</sup> Biezeno to Prandtl, Aug. 5 1938, MPG-Archiv III/61/2153. Biezeno nonetheless thanked Prandtl for his efforts to support German Jewish scientists.

<sup>36</sup> Wacker to Prandtl, Aug. 20, 1938, MPG-Archiv III/61/2153.

<sup>37</sup> Prandtl to J C Hunsaker, Oct. 7, 1938, and Prandtl to G.I. Taylor, Oct. 29, 1938, both MPG-Archiv III/61/1654.

<sup>38</sup> Hunsaker to Emile Jouguet, Sept. 26, 1938, Box 47, folder 7, von Kármán; "Fifth International Congress for Applied Mechanics, Unconfirmed minutes," (circa Sept 13, 1938), MPG-Archiv III/61/2153.

<sup>39</sup> Ibid.

<sup>40</sup> Russian State Archive of Socio-Political History (hereafter **RGASPI**), f. 17, op. 114 (Orgburo), d. 590, l. 49 and op. 3 (Politburo), d. 970. l. 9.

<sup>41</sup> On Mueller's work at Vavilov's see Elof A. Carlson, *Genes, Radiation, and Society: The Life and Work of H. J. Muller* (Ithaca, 1970).

<sup>42</sup> American geneticists to Levit, April 2, 1936, Archive of the Russian Academy of Sciences (hereafter **ARAN**), f. 201, op. 5, d. 2, ll. 35-37.

<sup>43</sup> On Russian eugenics see Mark B. Adams, "Eugenics in Russia," in *The Wellborn Science: Eugenics in Germany, France, Brazil, and Russia*, Mark B. Adams, ed., (New York, 1990), 153–216.

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<sup>44</sup> ARAN, f. 201, op. 3, d. 3, ll. 19-21.

<sup>45</sup> ARAN, f. 201, op. 3, d. 16, l. 17.

<sup>46</sup> Muralov and Levit to the Central Committee's Science Department, September 28, 1936, ARAN, f. 201, op. 3, d. 2, ll. 1-5.

<sup>47</sup> See GARF, f. 5446, op. 18a, d. 192, l. 46.

<sup>48</sup> "Moscow Cancels Genetics Parley," *New York Times* (hereafter **NYT**), December 14, 1936, 18.

<sup>49</sup> Detailed analysis of the first stage of the so-called Lysenko controversy appears in David Joravsky, *The Lysenko Affair* (Chicago, 1986) and in Nikolai Krementsov, *Stalinist Science* (Princeton, 1997).

<sup>50</sup> ARAN, f. 201, op. 3, d. 2, ll. 6-9, here l. 6.

<sup>51</sup> RGASPI, f. 17, op. 3, d. 982, l. 40. Molotov personally drafted this decision, and other Politburo members simply put "I agree" on Molotov's draft. Markedly, the signature of Joseph Stalin is absent on the original document; see RGASPI, f. 17, op. 163, d. 1128, l. 21.

<sup>52</sup> See GARF, f. 5446, op. 18a, d. 192, ll. 42-44.

<sup>53</sup> Prokhorov to Gorbunov, November 16, 1936 ARAN, f. 2, op. 1-1935, d. 83, l. 101.

<sup>54</sup> See, for instance, Otto Mohr, "The Next International Genetics Congress," *Science*, December 13, 1935, vol. 82, 565-66.

<sup>55</sup> RGASPI, f. 17, op. 163, d. 1141, l. 8.

<sup>56</sup> Vavilov to Mohr of January 4, 1937. TsGANTD, f. 318, op. 1-1, d. 1436, ll. 58-58 reverse.

<sup>57</sup> Kol'man to Molotov, November 5, 1936, GARF, f. 5446, op. 29, d. 30, ll. 185-190.

<sup>58</sup> During the autumn, Levit was several times called to the party committee for explanations and recantations, which eventually (on December 5) resulted in his expulsion from the Communist party membership. (See ARAN, f. 2, op. 1-1935, d. 83, l. 100.) During the Great Terror, this was a common prelude to arrest and a firing squad. Levit indeed was arrested the next winter and shot as an "enemy of the people." See Mark Adams, "Levit, Solomon Grigorevich," *Dictionary of Scientific Biography* 18, Suppl. II, 546-549.

<sup>59</sup> Ia. Iakovlev to Stalin and Molotov, RGASPI, f. 82, d. 624, ll. 6-7.

<sup>60</sup> See Hagedoorn to Mohr, April 27, 1937, and Tammes to Mohr, June 19, 1937, Otto Mohr Papers, Anatomical Institute of Oslo (hereafter **Mohr**). We thank Guil Winchester for copies of Mohr's correspondence.

<sup>61</sup> See Haldane to Mohr, July 23, 1937, Mohr Papers.

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<sup>62</sup> Which he accomplished: before the congress opened, Crew had been elected to the Royal Society.

<sup>63</sup> F.A.E. Crew, "Seventh International Genetical Congress," *Nature*, September 16, 1939, vol. 144, 496-498, here 496.

<sup>64</sup> Cook to Troyanovskii, December 19, 1936, Archive of Russian Foreign Policy, f. 192, op. 3, d. 53, papka 24, l. 57.

<sup>65</sup> Jennings to Dunn, December 24, 1936, L.C. Dunn papers, American Philosophical Library (hereafter **Dunn**).

<sup>66</sup> Dobzhansky to Dunn, December 21, 1936, Dunn.

<sup>67</sup> "Genetic Theory and Practice in the USSR," *Nature* 139 (January 30, 1937), 185.

<sup>68</sup> Mohr to Muller, November 26, 1937, Muller.

<sup>69</sup> Mohr made known his adverse opinion in two memorandums he sent to all the IOC members in spring-summer 1937.

<sup>70</sup> Emerson to Mohr, April 19, 1937, Mohr.

<sup>71</sup> Jennings to Dunn, December 22, 1936, Dunn.

<sup>72</sup> "Scientific Freedom," *Nature* 139 (January 30, 1937), 185.

<sup>73</sup> See for instance Haldane to Mohr, June [pre-27] and October 13, 1937, Mohr.

<sup>74</sup> Davenport to the Secretary of State, December 17, 1936. C. B. Davenport.

<sup>75</sup> "Science in the USSR," *Nature*, February 6, 1937, vol. 139, 227.

<sup>76</sup> The campaign began in the summer of 1936. The pretext for organizing it was the accusation that the eminent mathematician and member of the USSR Academy of Sciences, Nikolai Luzin, had published his work in foreign periodicals instead of Soviet ones. As recently discovered documents demonstrate, Stalin personally endorsed the campaign. During the early autumn, the campaign subsided, only to pick up steam a few months later when two prominent chemists refused to return to the Soviet Union after foreign trips. On the "Luzin affair" see Alex E. Levin, "Anatomy of a Public Campaign: 'Academician Luzin's Case' in Soviet Political History," *Slavic Review* 49 (1) 1990, 90–108; S. Demidov and B. V. Levshin, eds., *Delo akademika Nikolaia Nikolaevicha Luzina* (St. Petersburg, 1999). On Ipatieff and Chichibabin see: V. Komarov, "Akademiki nevozvrashchentsy," *Pravda*, Dec. 21, 1936, 3; "Nedostoinye grazhdanstva SSSR," *Pravda*, January 6, 1937, 2.

<sup>77</sup> Wilbur J. Carr, "A Report Upon the Participation of the United States in International Conferences,

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Congresses, Expositions, Fairs, and Commissions,” June 20, 1937, folder ‘US Participation in International Enterprises,’ 25; John A. Fleming to Albert L. Barrows, Aug. 3, 1936, folder ‘International Unions 1930-1939, Geodesy and Geophysics: Activities,’ both Division of Foreign Relations 1919-1939, National Academy of Sciences archives.

<sup>78</sup> Greenaway, *Science International* (cit. n. 3).

<sup>79</sup> See Adriaan Blaauw, *History of the IAU: The Birth and First Half-century of the International Astronomical Union* (Dordrecht, 1994); and T. Younes, "Seventy Years of IUBS: Assets, Constraints, and Potential for International Cooperation," *Biology International* 22 (1991), 2-9.

<sup>80</sup> Ronald E. Doel and Robert McCutcheon, "Introduction [Astronomy and the State in the U.S.S.R. and Russia]," *Journal for History of Astronomy* 26 (4) (1995), 3-20.

<sup>81</sup> Warren Kelchner to J.J. Nassau, July 25, 1950, Bertil Lindblad papers, Swedish Academy of Sciences.

<sup>82</sup> "Soviet Astronomy," *NYT*, July 15, 1949, 18.

<sup>83</sup> Spencer R Weart, *Nuclear Fear: A History of Images* (Cambridge, 1989); Jessica Wang, *Science in an Age of Anxiety: Scientists, Anticommunism, and the Cold War* (Chapel Hill, 1999), 274-279 and 289-295.

<sup>84</sup> Scott Alan Rausch, "McCarthyism and Eisenhower's State Department, 1953--1961," (Ph.D. dissertation, University of Washington, 2000); and Brian Schefke, "Morality and Materialism: American Conservatives and Science, 1945-1964," (MA thesis, Oregon State University, 2000). On the science office see "New Attack Arouses State Department Officials," *Washington Post*, Dec. 20, 1953; "Footnote to Turmoil," *Christian Science Monitor*, Dec. 20, 1953.

<sup>85</sup> Walter S. Adams to Otto Struve, Oct. 13, 1952, Box 2, Otto Struve papers, University of California Berkeley (hereafter **Struve**); W. Miller to A. Vyssotsky, Box 23, Vyssotsky papers, University of Virginia.

<sup>86</sup> Karl Weber [untitled report to PSAC], Dec. 21, 1960, Box 50, National Science Foundation records, National Archives (hereafter **NA**); Pol Swings to Struve, April 14, 1954, Box 3, Struve.

<sup>87</sup> So wrote Victor Weisskopf to John von Neumann, Oct. 28, 1955, folder ‘International Relations, General,’ NAS/NRC Policy files, NAS; on the FAS’s actions, see David L. Hill to Alden Emery, Jan. 20, 1954 and J.H. Hildebrand to W.E. Meyerhof, May 3, 1955, both Box 31, American Chemical Society records, Library of Congress, Washington, D.C. (hereafter **ACS**)

<sup>88</sup> Chia-hua to Sydney Chapman, Nov. 1, 1956, and Chapman, "Taiwan & IGY," Feb. 8, 1957, both Box

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31, Chapman papers, Rasmusen Library, University of Alaska Fairbanks; McConaughy memo of understanding, Sept. 5, 1956, and McConaughy, "Memo of conversation with Dr. S.H. Tan," Jan. 28, 1957, both Box 11, Records of the Office of Science Advisor, Entry 1549, RG 59, NA.

<sup>89</sup> In October 1956 Goldberg confidently expressed, "I know of no recognized observatory on Formosa;" see Goldberg to Andre C. Simonpietri, Oct. 25, 1956, Box 3, Struve.

<sup>90</sup> U.S. Embassy Moscow, note to Otto Struve, July 3, 1957 and Leo Goldberg to Detlev Bronk, Sept. 30, 1958, both Box 23, Struve.

<sup>91</sup> Goldberg to Struve, June 10, 1958, Box 3, Struve.

<sup>92</sup> Oort to Chang, Dec. 2, 1959, and Oort to Chang, Feb. 5, 1960, both Box 309, folder 8.1.1958, Jan Oort papers, Leiden University Library, Leiden (hereafter **Oort**); Goldberg to Struve, July 6, 1961, Box 10, folder 83.17, Leo Goldberg papers, Harvard University archives.

<sup>93</sup> Chang to Oort, Nov. 20, 1959, Box 309, folder 8.1.1958, Oort; Blaauw (cit. n. 94); L. Goldberg, "China and the IAU," draft, circa 1986, Goldberg working files, National Air and Space Museum, Smithsonian Institution; we thank David DeVorkin for access to this document.

<sup>94</sup> See Bronk, 'International Scientific Unions,' Dec. 28, 1959, Box 16, Rockefeller University papers (Detlev Bronk), Rockefeller Archive Center (hereafter **Bronk**).

<sup>95</sup> Greenaway, *Scientific Internationalism* (cit. n. 4), 93-94; PSAC meeting record, Dec. 15, 1959, Box 11, White House Office of the Special Assistant for Science and Technology (Killian/Kistiakowsky), Eisenhower Presidential Library (hereafter **S&T/Eisenhower**).

<sup>96</sup> "Chemists of U.S. Surpass Soviets," NYT, August 3 1958, 22. U.S. petroleum geologists also voted strong support for U.S. Cold War policies; see Wang, *Anxiety* (cit. n. 83), 203.

<sup>97</sup> Hildebrand to Emery, Dec. 29 1955, Box 26, and Emery to Meyerhoff, Jan 4 1956, Box 31, ACS. In 1953 the ACS had voted to exclude Nobel laureate Irène Joliot-Curie from membership because of her Communist sympathies; see Linus Pauling to Farrington Daniels, Oct. 28, 1953, folder SCI 14.004a.4a.4, Linus Pauling collection, Oregon State University, and Hildebrand to A. Nixon, May 19, 1954, Box 26, ACS.

<sup>98</sup> Brode, "International Scientific Cooperation," draft ms., Feb. 5, 1960, Box 25, Wallace R. Brode papers, Library of Congress [hereafter **Brode**].

<sup>99</sup> Zuoyue Wang, *American Science and the Cold War: The Rise of the U.S. President's Science Advisory*

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*Committee* (Ph.D. dissertation, University of California at Santa Barbara, 1994); Patrick J. McGrath, *Scientists, Business, & the State, 1890-1960* (Chapel Hill, 2002) and David M. Hart, *Forged Consensus: Science, Technology, and Economic Policy in the United States, 1921-1953* (Princeton, 1998).

<sup>100</sup> D. Z. Beckler to E. Skolnikoff, Dec. 18, 1959, Box 11, S&T/Eisenhower; U.S. Information Agency, "U.S. and Soviet Science and Technology," April 21, 1960, Office of Research and Analysis, Box 11, folder 355, Jerome Wiesner papers, MIT.

<sup>101</sup> Ronald E. Doel, "Scientists as Policymakers, Advisors, and Intelligence Agents: Linking Diplomatic History with the History of Science," in Thomas Söderqvist, ed., *The Historiography of The History of Contemporary Science, Technology, and Medicine* (London, 1997): 33-62.

<sup>102</sup> Alexis De Greiff, "Supporting Theoretical Physics for the Third World Development: The Ford Foundation and the International Centre for Theoretical Physics," in Giuliana Gemelli, ed., *American Foundations and Large-Scale Research: Construction and Transfer of Knowledge* (Bologna, 2001), 25-50; and John Krige, "The Ford Foundation, European Physics, and the Cold War," *HSPS* 29, 2 (1999), 333-361.

<sup>103</sup> D. Z. Beckler to E. Skolnikoff, Dec. 18, 1959, and Skolnikoff to Killian, July 8, 1960, both Box 11, S&T/Eisenhower; Brode, "International Scientific Cooperation," Feb. 5, 1960, and Brode to Loy Henderson, April 26, 1960, Box 25, Brode; 'Briefing Note for PB [Planning Board] meetings,' May 11, 1960, Box 3, WH, NSC Staff, NSC Registry Series, Eisenhower.

<sup>104</sup> George B. Kistiakowsky, "Science and Foreign Affairs," *Science* 131 (1960): 1019-1024; and Wallace R. Brode, "[Priestley Medal Address]," draft copy, [April 9, 1960], Box 16, Bronk.

<sup>105</sup> Untitled notes on the 468<sup>th</sup> meeting of the NSC, Dec. 2, 1960, Box 13, NSC series, Ann Whitman file, Eisenhower.

<sup>106</sup> This new policy persisted through the 1960s. A partial account of the conflict appears in George B. Kistiakowsky, *A Scientist at the White House: The Private Diary of President Eisenhower's Special Assistant for Science and Technology* (Cambridge, 1976).

<sup>107</sup> Though interestingly not for astronomy, which through the mid-1950s relied primarily on private patronage; see David H. DeVorkin, "Who Speaks for Astronomy? How Astronomers Responded to Government funding after World War II," *HSPS* 31, 1 (2000): 55-92.

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<sup>108</sup> Jessica Wang, “Scientists and the Problem of the Public in Cold War America, 1945-1960,” *Osiris* 17 (2002), 323-347, quoted on 338; see also Beyler, Kojevnikov and Wang, this volume.

<sup>109</sup> Ronald E. Doel and Allan A. Needell. “Science, Scientists, and the CIA: Balancing International Ideals, National Needs, and Professional Opportunities,” *Intelligence and National Security* 12, 1 (1997): 59-81.