

## **ABSTRACT (I)**

Science in Propaganda and Popular Culture in the USSR under Khrushchëv (1953-64)

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Thesis Submitted for the Degree of Doctor of Philosophy (Trinity 2005) [re 2006]

This thesis is the first detailed study of the way in which science and technology were portrayed in propaganda and popular culture during the Khrushchëv period, a time when the Soviet leadership invested significant resources, both at home and abroad, in order to capitalise on its scientific achievements. It draws upon a wide range of previously unseen materials from the archives of the RSFSR Ministry of Education, the Soviet Academy of Sciences, the State Committee on Radio and Television and the Central Committee of the CPSU. It provides the first archive-based analysis of the lecturing organisation 'Znanie', which was crucial to the dissemination of Soviet propaganda in the post-war period. The thesis also makes use of a variety of published sources, such as popular science publications and journals, as well as a number of Soviet films from the Khrushchëv period.

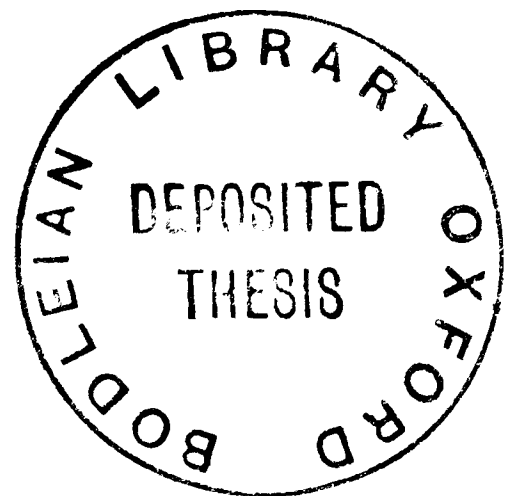
The thesis examines the manner in which scientific information was disseminated to the Soviet public and the ways in which public scientific opinion was able to participate in, and influence, this process. It is shown that a general lack of institutionalised control enabled members of the scientific intelligentsia to exercise a degree of control over the content of scientific propaganda, often in a very idiosyncratic fashion. The way in which the rhetorical and ideological presentation of science changed during the Khrushchëv period (often identified as 'the Thaw') is analysed, and it is shown that while Soviet popular science did become increasingly open to foreign influence it became preoccupied with new threats, such as generational and personal conflict. The thesis also uses the available sources to consider popular responses to scientific propaganda and, in particular, whether attempts to use scientific-atheistic propaganda to create a 'materialist' worldview amongst Soviet citizens met with any success.

The thesis provides detailed case studies of the use of science in Khrushchëv's atheistic campaigns, of propaganda surrounding early Soviet achievements in the space race and of the portrayal of the Lysenko controversy in the popular media.

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## ABBREVIATIONS USED IN THE TEXT AND FOOTNOTES

ARAN	Arkhiv Rossiiskoi Akademii Nauk
CC	Central Committee (of the CPSU)
CPSU	Communist Party of the Soviet Union
<i>EvSh</i>	<i>Estestvoznanie v Shkole</i>
GARF	Gosudarstvennyi Arkhiv Rossiskoi Federatsii
GOELRO	Gosudarstvennaia Komissia po Elektrifikatsii Rossii
<i>I&amp;R</i>	<i>Izobretatel' i Ratsionalizator</i>
<i>KP</i>	<i>Komsomol'skaia Pravda</i>
MGU	Moskovskii Gosudarstvennyi Universitet
NEP	New Economic Policy
<i>N&amp;R</i>	<i>Nauka i Religiiia</i>
<i>N&amp;Zh</i>	<i>Nauka i Zhizn'</i>
RGANI	Rossiiskii Gosudarstvennyi Arkhiv Noveishei Istorii
RSFSR	Russian Soviet Federated Socialist Republic
TsGAMO	Tsentral'nyi Gosudarstvennyi Arkhiv Moskovskoi Oblastia
TsMAM	Tsentral'nyi Munitsipal'nyi Arkhiv Moskvi
VASKhNIL	Vsesoiuznaia Akademiia Sel'sko-Khoziastvennykh Nauk, Imeni V.I.Lenina
VUZ	Vysshee Uchebnoe Zavedenie
Z-S	<i>Znanie - Sila</i>

## INTRODUCTION

Science and technology were always central to Soviet communism's vision of the preordained future. Nineteenth-century Marxists embraced scientific progress, seeing it as the necessary precondition for all social and economic change. Furthermore, Marxism, most explicitly in Engels's interpretation, was intended to be a scientific ideology which took account of the latest discoveries in the physical and biological sciences, put forth verifiable hypotheses, relied on empirical data and ultimately arrived at objective and universal laws. Self-proclaimed 'orthodox' Marxists contended with Revisionists and non-Marxist socialists over whose vision of progress was most compatible with scientific theory, most notably Darwinism.<sup>1</sup> The generally positive attitude to science and technology shared by all Marxists was accentuated in the case of the Bolsheviks, who saw the concerted promotion of science and technology as a means of overcoming Russia's historical backwardness. Therefore the Bolsheviks always put the rapid development of science and technology at the centre of their ideological programme, and made it one of the legitimising cornerstones of their programme for the development of the USSR. Indeed, Alexei Kojevnikov has recently gone so far as to suggest that as early as the mid-1930s, after the death of Gor'kii, 'Science would replace literature as the center of Soviet culture and its dominant symbol.'<sup>2</sup>

Whether such a claim is accepted or regarded as exaggerated, it is clear that in the Khrushchëv era science and technology were placed centre stage as never before, as Western capitalism and Soviet socialism laid claim to a monopoly on social and economic progress. Every work on Khrushchëv and his period in power makes mention of the triumphs represented by the flights of Sputnik and Iurii Gagarin, which seemed to propel the Soviet Union to the level of a competitor for global hegemony. These successes were the fruit of a massive expansion in funding for the scientific community in the post-war period, and an accompanying growth in influence for Soviet scientists, especially those connected with the defence sector. However, Party support for the sciences did not simply rest on a pragmatic interest in economic growth and the development of military hardware, as Nikolai Kremontsov notes:

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<sup>1</sup> See David Stack *The First Darwinian Left: Socialism and Darwinism, 1859-1914* (New Clarion Press: London 2003), esp. pp.64-85

<sup>2</sup> Alexei B. Kojevnikov *Stalin's Great Science: The Times and Adventures of Soviet Physicists* (Imperial College Press: London 2004), p.283

The Communist Party's generous funding for science rested upon a simple instrumentalist view that science could serve its political and economic objectives, which meant not simply heightened agricultural productivity or a better atomic bomb, but also an image of science and the scientist consonant with Soviet politics and culture.<sup>3</sup>

Thus, the 'image of science and the scientist' was a crucial component of the Soviet ideological outlook and of central concern when considering the funding of science; the Party had an ideological commitment not only to promote science, but also to promote its understanding amongst the population. Scientific progress not only ensured the security of the socialist motherland and fostered economic growth, it was also intended to promote a materialist understanding of the world, and of man's place within it. Scientific propaganda contributed to the project of forging Homo Sovieticus, a worthy inhabitant of the communist utopia, and to the task of convincing Soviet citizens that this communist utopia was imminent.

Although Marxism-Leninism obviously provided the explicit ideological justification for the Soviet Party-state, propagandists and ideologues were well aware that this needed to be accompanied and mediated by something more immediate and less rarefied than abstract ideological postulates. The vast majority of historians have agreed with the assessment of contemporary observers that Marxism-Leninism, in its 'pure variant' as taught in Party schools, could not act as an ideological rallying point for the population. The need to legitimise the Soviet regime was particularly urgent in the Khrushchëv era, as the role of state coercion in the Soviet system was being reduced, and the previously sacrosanct image of Stalin was being denounced as part of the attack on the 'cult of personality'. However, attempts to generate legitimacy by constructing a personality cult around Khrushchëv, similar to that which had been constructed around Stalin, achieved only partial success. Khrushchëv, for all his faults, did not wish to see his cult developed to the extremes that Stalin's had been, and he simply failed to project authority in the fashion that Stalin had, especially in the post-war years.<sup>4</sup>

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<sup>3</sup> Nikolai Kremontsov *Stalinist Science* (Princeton University Press: New Jersey 1997), p.287

<sup>4</sup> Mark Frankland *Khrushchev* (Penguin: Harmondsworth 1966), p.197; for a description of the personality cult of Stalin as 'qualitatively different' to those of Khrushchëv and Brezhnev, see E.A. Rees 'Leader Cults:

A number of recent studies have focused on alternative sources of legitimacy that Soviet ideologues sought to combine with Marxism-Leninism in order to foster popular support. A great deal of attention has been paid to the role of Russian nationalism and the 'cult of the war' in legitimising the post-war Soviet regime. The work of David Brandenberger and Yitzhak M. Brudny has demonstrated how Russian nationalism was reconstructed in an instrumental fashion between the mid-1930s and the fall of the Soviet Union in an attempt to win greater popular support for the Marxist-Leninist Party-state.<sup>5</sup> This manipulation of nationalist rhetoric, apparently misunderstood by much of the population and many of those within the *apparatus* to sanction a genuine rebirth of Russian nationalism, helped rally Soviet citizens to defend a regime they otherwise detested during the Great Patriotic War. Victory in that war provided another important pillar of legitimacy for the regime, with Amir Weiner recently arguing that the war formed part of the 'pantheon of myths that endowed the permanent revolution with legitimacy and historical relevance'.<sup>6</sup> He adds:

The cult of the war seemed only to intensify as the Soviet Union moved away from both the October Revolution and the war itself, and as some key elements of the Stalinist regime were being denounced, for example, the cult of personality and mass terror, the partial acknowledgement of the crisis of the command economy, and the routinization of other fundamentals of the revolutionary ethos.<sup>7</sup>

However, others have questioned whether this process was quite so linear. Nina Tumarkin has demonstrated that the 'myth of World War II' did not assume its final form until the late 1960s; Victory Day only became a public holiday in 1965 and the Tomb of the Unknown Soldier in Moscow was only

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Varieties, Preconditions and Functions' in E.A. Rees (ed.) *The Leader Cult in Communist Dictatorships* (Palgrave: Basingstoke 2004), pp.3-26, here at p.20.

<sup>5</sup> Yitzhak M. Brudny *Reinventing Russia: Russian Nationalism and the Soviet State, 1953-1991* (Harvard University Press: Cambridge MA 1998), David Brandenberger *National Bolshevism: Stalinist Mass Culture and the Formation of Modern Russian National Identity 1931-56* (Harvard University Press: Cambridge MA 2002)

<sup>6</sup> Amir Weiner *Making Sense of War: The Second World War and the Fate of the Bolshevik Revolution* (Princeton University Press: New Jersey 2001), p.8

<sup>7</sup> *ibid.*, p.380

completed in 1966.<sup>8</sup> This was no coincidence. Khrushchëv's ambivalent analysis of Stalin's wartime leadership made attempts to use the war to buttress his own personal authority extremely complicated. Whatever the Generalissimo's acknowledged flaws, it could not be denied that the Soviet Union had fought and won the war under his command and in his name. Attempts, during the Thaw, to derive legitimacy from the recent past were fraught with problems. There was a feeling, as expressed by Petr Vail' and Aleksandr Genis in their lyrical, nostalgic series of essays on the 1960s, that the 'old heroes would not do. The future must be built by those unstained by the past.'<sup>9</sup>

Some have therefore argued that Khrushchëv, due to both pragmatism and personal inclination, embraced a distinctly utopian strand in Leninism, looking to the future for legitimisation rather than to the past. Polly Jones makes the point that even in the immediate aftermath of Stalin's death, articles in the mass press 'stressed the importance of the future, rather than looking nostalgically, and much less despairingly, to the past.'<sup>10</sup> One Russian historian, Anatolii Beda, has seen 1958 as the watershed between a period when legitimacy in the USSR was constructed on 'patriotism' and a period when it was founded on 'communism'. He claims that prior to 1958 official propaganda had been obsessed with the past, focusing first on Russian patriotism and then on iconoclastic attacks on the Stalin cult. Beda contrasts this with the situation after the 21st Party Congress of 1959, which saw 'the accomplishment of the change from historicism as the priority component of cultural-political work to futurism.' He sees evidence of this shift in public discourse in the Soviet successes in the early space race, the boom in science fiction in the early 1960s and the Third Party Programme of 1961, which he terms a 'deeply futuristic document'.<sup>11</sup> This party programme, which proclaimed that communism would be achieved by 1980, is often cited as evidence of Khrushchëv's utopianism. This has been challenged by, amongst others, Mark Sandle who argues the programme foresaw

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<sup>8</sup> Nina Tumarkin *The Living and the Dead: The Rise and Fall of the Cult of World War II in Soviet Russia* (Basic Books: London 1994), pp.110, 127, 144

<sup>9</sup> Petr Vail' and Aleksandr Genis *60-e: Mir Sovetskogo Cheloveka* (Novoe Literaturnoe Obozrenie: Moscow 2001), p.100; it should, of course, be noted that the attack on Stalin's 'cult of personality' was accompanied by the revival of a personality cult from the more distant past, that of Lenin.

<sup>10</sup> Polly Jones *Strategies of De-Mythologisation in Post-Stalinism and Post-Leninism: A Comparison of De-Stalinisation and De-Leninisation* (Unpublished D.Phil Thesis: Oxford 2002), p.45

<sup>11</sup> A.M. Beda *Sovetskaia Politicheskaia Kul'tura Cherez Prizmu MVD: ot 'Moskovskogo Patriotizma' k Idee 'Bol'shogo Otechestva', 1946-1958* (Mosgorarkhiv: Moscow 2002), pp.16-19; this work, while suggesting some interesting chronological sub-divisions in the political culture of the post-war Soviet Union, relies on an overly-crude cyclical model of Soviet history, based on the works of Vladimir Vernadskii and Nikolai Kondrat'ev, seeing 1958 as the watershed between a twelve-year 'patriotic' cycle begun in 1946 and a 'communist' cycle which was to last until 1970.

‘not the abolition of scarcity, but the attempt to achieve a western level of consumption, ambitious by Soviet standards, but hardly akin to a utopian society.’<sup>12</sup> This ignores the quasi-religious significance of ‘communism’ in Soviet society, where it was understood that the Party was effectively announcing that 1980 would see the end of history. There seems to me little doubt that Khrushchëv’s vision of socialism was distinctly utopian, and distinguished him from many of his colleagues and peers in the political élite. However, it remains important not to contrast this utopianism too dramatically with late Stalinism. After all, the early 1950s witnessed the ‘Stalin Plan for the Transformation of Nature’, and the utopian trend in Leninist thought, despite talk of a ‘Great Retreat’, had never been far from centre stage.<sup>13</sup>

Scientific progress was obviously a precondition for the achievement of communism, but any attempt to use science to project an image of the communist utopia, as the Party-state desired, would not go uncontested. Despite the cataclysm of Hiroshima, science possessed considerable prestige in the post-war years, both in the Soviet Union and throughout the developed world. Therefore those with radically different political views sought to use science to legitimise their own views. The group known as the *shestidesiatniki* developed a highly romanticised vision of science, with many seeing the scientific achievements and visionary utopianism of the 1960s not as proof of the validity of Party doctrine but as an alternative to it. Vail’ and Genis refer to ‘priests of science’ working in ‘temples’ and making sacrifices on the ‘altar of science’, rhetoric which was popular with both scientists and publicists at the time. Science, for liberal members of the intelligentsia, meant the ‘authority of abstract knowledge with practical results’ and they hoped for the day when ‘precise science would replace approximate ideology.’ Vail’ and Genis state boldly: ‘Social opinion turned [scientists] into aristocrats of the soul.’<sup>14</sup> During the 1960s, as reform-minded members of the intelligentsia saw it, there was no higher calling for a Soviet citizen than to devote himself to the truths of abstract science, which were purer than those of ideology. Sometimes these abstract truths might coincide with official rhetoric, but at times they might contradict it. Such romantic interpretations should not be uncritically accepted as representative but, as this thesis hopes to make clear, while scientific

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<sup>12</sup> Mark Sandle ‘Brezhnev and Developed Socialism: The Ideology of *Zastoi*’ in Edwin Bacon and Mark Sandle (eds.) *Brezhnev Reconsidered* (Palgrave: Basingstoke 2002), pp.165-187, here at p.177

<sup>13</sup> For a rebuttal of the ‘Great Retreat’, that I find only partially convincing, see David L. Hoffman *Stalinist Values: The Cultural Norms of Soviet Modernity, 1917-1941* (Cornell: Ithaca 2003) and for a critique of the idea of a ‘Soviet Thermidor’ see Weiner *Making Sense of War*, pp.12-21.

<sup>14</sup> Vail’ and Genis *60-e: Mir Sovetskogo Cheloveka*, pp.100-3

progress was almost universally accepted and embraced in this era very different interpretations of the meaning of science were put forward.

This thesis therefore presents a case study of three central issues: the interaction between Party-state and scientists in producing scientific propaganda, the changing ideological and social environment within which science was presented and, finally, the way in which science was perceived, interpreted and understood by the Soviet population. The historiographical background that informs my approach to each of these three issues will now be examined in turn.

## SCIENTISTS IN SOVIET SOCIETY

The first issue that this thesis addresses is the role of the Soviet scientific élite, or what James T. Andrews has termed ‘public scientific opinion’, in determining the content and presentation of popular science propaganda.<sup>15</sup> Andrews, in his recent study of popular science propaganda in the 1920s and 1930s, argues that scientific popularisers form a particularly interesting sub-group within the scientific community. His work demonstrates the continuity between the late tsarist regime and the 1920s, and emphasises that the radical breach within the popular science community came only with the Stalinist ‘revolution from above’ of the first Five Year Plan. Andrews specifically identifies scientific popularisers as being uniquely positioned within society in the 1920s and 1930s:

Popularizers formed ‘public scientific opinion’, like other scientific subgroups, but they also uniquely supported broad, popular civic culture. Their interests both diverged and converged with the mass-enlightenment agenda of the Bolshevik regime. So, instead of looking down on Soviet mass, voluntary activity, popularizers embraced it and by doing so attempted to maintain their independent civic domains. Furthermore, science popularizers, unlike other scientific subgroups, represented radically diverse professional and ideological positions. They were unique, as an amorphous cohort, since they attempted to transgress professional, discursive, social and class boundaries.... Science popularizers, unlike other Russian professional caste-like elites, represented

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<sup>15</sup> James T. Andrews *Science for the Masses: The Bolshevik State, Public Science and the Popular Imagination in Soviet Russia, 1917-1934* (Texas A&M University Press: College Station 2003), p.5

a point at which state, society and scientists all converged in an expanding and contracting public sphere. As a group of Russian intellectuals, the popularizers were somewhat of an anomaly because they did not represent a singular corporate identity.<sup>16</sup>

Andrews's work emphasises that scientists in the Soviet Union, while retaining a distinct sense of their identity, had to constantly interact with the Party-state. The question of the nature of such interaction is the most fiercely debated topic in the history of Soviet science, although some authors continue to maintain a schematic picture of the Soviet Party-state unilaterally enforcing its will on 'repressed science'. A.B. Bezborodov, for instance, in his study of dissidence in the Soviet academic community, notes that the dissidents only made up a small section of the scientific community, and that therefore 'the majority of scientists and scientific workers remained conformists.'<sup>17</sup> The use of such terminology gives the impression that scientists who were not outspoken dissidents like Andrei Sakharov were entirely passive in their relationship with the state. However, a pioneering work by Nikolai Krementsov, focused on the interaction of the Party-state and the Soviet scientific community in the early post-war years, has led most historians of Soviet science to question such assumptions. Events such as the August Session of 1948, which ruthlessly imposed Lysenkoist dogmas in Soviet biology, are not interpreted by Krementsov as part of a simple narrative in which an ideologically-blinkered state oppresses 'scientific society'. Rather, they are seen as the result of an interaction between Party agencies and scientists in the context of the Cold War and the emergence of a vastly-inflated military-industrial complex. Krementsov does not see the history of post-war Soviet science as a struggle between 'heroes and villains' or 'dissidents and conformists', and instead terms science and the state 'symbionts':

....the scientific community employed the importance and prestige given to science by the state to assert its own authority over science policy and to greatly expand its institutional base. Thus, the state apparatus and the scientific community each strove to acquire what it most wanted from the

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<sup>16</sup> *ibid*, pp.5-6

<sup>17</sup> A.B. Bezborodov *Fenomen Akademicheskogo Dissidentstva v SSSR* (RGGU: Moscow 1998), p.43

other. The state provided scientists with funds, resources, and great public prestige; the scientific community gave the state expertise and legitimacy in industry, agriculture, and medicine.<sup>18</sup>

Krementsov does not refrain from terming the Stalinist state ‘totalitarian’ but he draws attention to its ‘very complex internal structure’, where different agencies advanced ‘conflicting objectives and conducted their own, often conflicting policies.’ The scientific community was ‘fragmented into numerous subgroups that competed with each other’, each subgroup seeking out patrons, advancing spokesmen and attempting to adapt Marxist rhetoric to justify its existence. The process of ‘coevolution and convergence’ meant that the boundaries between the state apparatus and the scientific community were ‘frequently blurred’, a characterisation which we shall see is undoubtedly true in the case of the scientific propaganda bureaucracy. Kremmentsov also notes that scientists engaged in ‘intricate games and performed puzzling ceremonies’ in order to maintain their funding and authority, games and ceremonies which certainly included their obligation to engage in state-sponsored propaganda.<sup>19</sup> Alexei Kojevnikov draws similar conclusions, emphasising that while Party officials established the ‘rules’ for the ritualised scientific debates of the late 1940s and often acted as their ‘referees’, scientists were active participants in such debates and were able to significantly influence their outcome.<sup>20</sup>

Interestingly, Kremmentsov and Kojevnikov’s conclusions are mirrored by Jessica Wang’s study of the experience of American scientists during the early years of the Cold War and President Truman’s loyalty-security programme. Wang argues that, rather than defending an ideal of ‘pure science’, many liberal and left-wing American scientists ‘sought to subordinate the autonomy of science to a larger political agenda’ and that the scientific community as a whole was ‘simultaneously, partially responsible for but also subject to the ideological constraints of the post-war era’.<sup>21</sup> Paul Boyer also argues that, by justifiably using alarmist rhetoric and imagery to encourage fear of nuclear conflict in the early post-war years, American scientists ‘may have served as unwitting advance agents of the very anticommunist hysteria most of them

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<sup>18</sup> Nikolai Kremmentsov *Stalinist Science*, p.4; the term ‘symbionts’ is used in a similar context in Mark B. Adams *Networks in Action: The Khrushchëv Era, the Cold War and the Transformation of Soviet Science* (Trondheim Studies in East European Cultures and Society: 2000), p.30

<sup>19</sup> Kremmentsov *Stalinist Science*., pp.5-6, 287

<sup>20</sup> Kojevnikov *Stalin’s Great Science*, esp. pp.215-7

<sup>21</sup> Jessica Wang *American Scientists in an Age of Anxiety: Scientists, Anticommunism, and the Cold War* (University of North Carolina Press: Chapel Hill 1999), pp.4, 42

deplored.’<sup>22</sup> The common theme in the work of Kremmentsov, Kojevnikov, Wang and Boyer is that science and scientists never exist in a political vacuum, and that rhetoric can easily migrate across the artificially-established boundary from science to politics and vice versa. This suggests any conceptualisation of a ‘political’ state intervening in the ‘apolitical’ sphere of scientific activity is likely to be inherently simplistic.

Surprisingly, there is, as yet, no comprehensive work on the scientific community in the Khrushchëv era to compare with Kremmentsov’s work on the post-war years. Alexei Kojevnikov has noted that with regard to history of science, the post-Stalin era is ‘a virtually unexplored period’ but, in his own brief account of the ‘post-Stalin settlement’ in Soviet science, he suggests that after 1953 ‘polite intercourse became the dominant characteristic of the relationship between political and academic elites’ and that an unofficial policy of ‘mutual cooptation’ enabled the higher strata of the scientific and Party élites to live in mutually beneficial harmony.<sup>23</sup> The consensus is that, despite the Khrushchëv period currently being under-researched, further work will yield interesting results. Konstantin Ivanov provisionally suggests that changes in the Khrushchëv era ‘altered the very understanding of what science was, or should be, in the socialist society’<sup>24</sup> and Mark B. Adams notes that in ‘our story of Soviet science, as it eventually unfolds, I suspect the Khrushchëv era will loom rather large, much larger than it has thus far.’<sup>25</sup>

Recent specialist works on specific fields of scientific research in the post-Stalin era provide substantial support for such optimistic predictions. Slava Gerovitch has done extensive work on the transformation of cybernetics in the post-war Soviet Union from a ‘bourgeois pseudo-science’ into a radical ideology for transforming socialist society, and finally into an essentially meaningless umbrella phrase manipulated by different groups to secure political and financial support. He presents his research as a study of ‘the historical encounter between the language of cybernetics and the Soviet ideological language’ in which different interest groups employed different ‘discursive strategies’, which were framed in the emerging lexicon of ‘cyberspeak’. Rather than seeing a ‘simple binary opposition’ between state and scientific community in the 1950s, Gerovitch instead sees a ‘confusing Mobius strip’, where it became hard

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<sup>22</sup> Paul Boyer *By the Bomb’s Early Light*, p.106

<sup>23</sup> Alexei Kojevnikov ‘A New History of Russian Science’ in *Science in Context* Vol.15, No.2 (June 2002), pp.177-183, here at p.181, idem. *Stalin’s Great Science*, pp.298-9

<sup>24</sup> Konstantin Ivanov ‘Science after Stalin: Forging a New Image of Soviet Science’ in *Science in Context* Vol.15, No.2 (June 2002), pp.317-338, here at p.317

<sup>25</sup> Adams *Networks in Action*, p.2

to see who was on which side.<sup>26</sup> Douglas R. Weiner's work on Soviet ecologists and field biologists, and their struggle to protect the nature reserves [*zapovedniki*] of the USSR, also provides valuable insights. Although he acknowledges that these scientists could not 'fully escape dependence on their system', their very marginal status in Soviet political and economic debates paradoxically enabled them to make nature preservation 'a surrogate for politics' which provided 'the only vehicle to express deep feelings of civic concern'. Weiner sees such groups of such scientists as evidence of the 'durability of corporatist or guildlike social identities in Russia' and describes scientific public opinion as 'a self-designation that connoted a social identity with its own values, tradition, interests and ethical norms.'<sup>27</sup> The work of Gerovitch and Weiner therefore suggests that scientific élites had a very dynamic and fluid relationship with the Party-state. This relationship was heavily dependent on their ability to selectively employ Soviet rhetoric in order to justify both their social status and their research projects.

Paul R. Josephson has written a number of articles that do concentrate on scientists and scientific propaganda in the 1950s and 1960s, mostly focusing on scientists' espousal of the 'peaceful atom'. He argues that in the post-war period Soviet scientists built the 'social and cultural foundations for massive expenditures on forms of technology that promised only limited immediate social benefits' and that they 'needed to develop popular support for their programs, especially in view of the fact that to the average Soviet citizen, potential applications seemed long in coming to fruition.' Scientists therefore sought to sell their vision of progress to the Soviet population, and a 'cult of science and technology, atomic and space culture, and heavily publicized visions of uses for rockets and reactors was central to this process.'<sup>28</sup> Josephson has also written about how the grand projects of Soviet technology, from electrification to river-diversion, were 'visible cultural artefacts to legitimate political leadership', and how within this tradition Khrushchëv 'retained Stalin's personal identification with large-scale technologies as emblems of his own leadership and legitimacy within the system.'<sup>29</sup> However, these accounts, which are reliant on published

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<sup>26</sup> Slava Gerovitch *From Newspeak to Cyberspeak: A History of Soviet Cybernetics* (MIT Press: Cambridge MA 2002), pp.3, 6, 9

<sup>27</sup> Douglas R. Weiner *A Little Corner of Freedom: Russian Nature Protection from Stalin to Gorbachev* (University of California Press: 1999), pp.5, 19, 444-6

<sup>28</sup> Paul R. Josephson 'Rockets, Reactors, and Soviet Culture' in Graham (ed.) *Science and the Soviet Social Order*, pp.168-191, here at pp.168-9, 172

<sup>29</sup> Paul R. Josephson "'Projects of the Century'" in *Soviet History: Large-Scale Technologies from Lenin to Gorbachev* in *Technology and Culture* Vol.36, No.3 (July 1995), pp.519-559; here at p.538

articles and speeches rather than archival sources, exaggerate the amount of freedom that was accorded to scientists in producing scientific propaganda and downplay the potential for conflict between scientists and Party élites over the political and ‘worldview’ content of propaganda.

While it is important to examine cases where conflict could arise, I do not assume that, at least at the higher levels, public scientific opinion and the Party-state that oversaw propaganda could be easily distinguished. Scientific propaganda was too complex to simply be transmitted ‘from above’ using scientific spokesmen as its medium, as totalitarian theorists might imagine. Rather, it had to be mediated and interpreted by scientific élites, who had already learnt how to use Soviet ideological rhetoric in their own interests, and may have partially internalised it. Therefore, I often resort to talking about ‘the propaganda establishment’, a broad term for the political and social élite that staffed organisations such as the Central Committee Department for Science and Culture, the lecturing society ‘Znanie’, the Ministry of Education and the media sector in general. This group included both Party and non-Party actors, who were more likely to be in conflict with superiors and subordinates than with each other. These bureaucrats were united by a sincere desire to promote scientific education, although their ideas regarding what that term implied often differed, as we shall see. Therefore, while there were areas where scientific public opinion and representatives of the Party-state clashed, they also had shared interests. However, it should be noted that this unity of interests does not imply that scientific élites ‘sold out’ and became ‘conformists’ within a passive or entrenched bureaucratic monolith, as we shall see during the course of this thesis.

## THE IDEOLOGICAL CONTEXT OF SCIENCE IN POPULAR CULTURE

The second issue this thesis addresses is the changing ideological and social context of science and how this changing context was presented to the Soviet public. Recently the attention of historians of Soviet science has begun to shift away from the laboratory and towards the broader social and ideological environment within which science operated. The study of science in Soviet propaganda and popular culture has been most thorough for the period of the 1920s and 1930s, where authors have recently shown how achievements in science, medicine and technology were used to construct a narrative of rural 'backwardness' and urban, socialist 'progress'. This vision, if successfully conveyed to the population, could be used to promote and legitimise programmes of radical social and economic change. Paula A. Michaels has demonstrated how Soviet medical programmes in Central Asia, including a broad network of health propaganda initiatives, sought to promote Soviet scientific medicine and stigmatise peasant remedies as 'backward'.<sup>30</sup> Scott W. Palmer, in his work on the image of powered flight in both late-tsarist and early Soviet popular culture has demonstrated how the Soviets used the image of flight, presented by books, films and 'agit-planes', as 'a central token in demarcating the superiority of their urban, industrial ideology over the traditions and practices of the rural village community.'<sup>31</sup> Eric Naiman has also discussed how works of popular science devoted to sexual health contributed to the establishment of a 'biological analogy to the development of socialism in one country' under NEP, thus justifying increased Party intervention to root out ideological 'infection'.<sup>32</sup> It is clear that science and technology were central to the image of themselves that the Bolsheviks presented to the broader Soviet population.

Despite the apparent novelty of such propaganda, James T. Andrews has argued that, in terms of both content and personnel involved, Soviet popular science of the 1920s maintained significant continuity with that of the late tsarist period. He demonstrates that the most dramatic change in the nature of Russian popular science came not with the Revolution, but with the beginning of an accelerated programme of economic development at the end of the 1920s. During the 1930s science propaganda emphasised the

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<sup>30</sup> Paula A. Michaels *Curative Powers: Medicine and Empire in Stalin's Central Asia* (University of Pittsburgh Press: 2003)

<sup>31</sup> Scott W. Palmer 'Peasants into Pilots: Soviet Air-Mindedness as an Ideology of Dominance' in *Technology and Culture* Vol.41, No.1 (January 2000), pp.1-26, here at p.25

<sup>32</sup> Eric Naiman *Sex in Public: The Incarnation of Early Soviet Ideology* (Princeton University Press: New Jersey 1997), p.144

significance of technology and ‘hands-on’ knowledge over theoretical, ‘worldview’ considerations, and Andrews notes: ‘Science during the Stalinist period took on an increasingly narrow meaning in the public realm. The Stalinist temple of science was the factory-floor and the machine, and productive capacity became an end in itself as scientific knowledge and epistemological inquiry was relegated to the background.’<sup>33</sup> Amongst other things, this thesis will demonstrate how ‘scientific knowledge and epistemological enquiry’ returned as central concerns of popular science in the 1950s.

The study of scientific propaganda in the post-war period is considerably less developed than that of the 1920s and 1930s. There is not yet any detailed study of the scientific propaganda of the late 1940s, a time when science became a prominent ideological battlefield in the Cold War. This is perhaps unsurprising, given the derivative nature of much of this propaganda; Peter Kenez notes that the film biographies of famous scientists produced in the early Cold War were notable mainly for their ‘mind-numbing uniformity’ and their ‘virtually interchangeable’ dialogue.<sup>34</sup> Despite this, Nikolai Kremmentsov, in his recent study of the 1946-7 ‘KR Affair’ has detailed how, with the personal involvement of Stalin, a prize-winning play (*Alien Shadow*) and a movie (*The Court of Honour*) were produced about the trumped-up espionage scandal in order to exalt the patriotic virtues appropriate to a Soviet scientist.<sup>35</sup> However, the numerous written and filmed biographies of Russian scientists that were produced in this era have not yet been the subject of any extensive study.

Previous attempts to examine the changing ideological and social context of science in the Khrushchëv era have been largely confined to examining the portrayal of science in fiction. Rosalind J. Marsh has written the definitive work on the portrayal of science in Soviet literature between the 1950s and the 1980s, demonstrating that research institutes were very convenient environments in which to explore such topics as the nature of authority, the search for truth and generational conflict, all of which were crucial to the cohort coming of age in the Thaw. However, I would disagree with Marsh that literature was ‘more effective than the standard means of mass persuasion’ in shaping the population’s perception of

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<sup>33</sup> Andrews *Science and the Masses*, p.3

<sup>34</sup> Peter Kenez *Cinema and Soviet Society, 1917-1953* (Cambridge University Press: 1992), pp.240-1

<sup>35</sup> Nikolai Kremmentsov *The Cure: A Story of Cancer and Politics from the Annals of the Cold War* (University of Chicago Press: 2002), pp.134-157; the ‘affair’ made an example of two Soviet researchers, Kliueva and Roskin, who had allegedly shared secret materials on new cancer treatments with American scientists, without having sought permission from the relevant state authorities.

science, as I believe this exaggerates the, admittedly great, popularity of some of the writers whose work she discusses. While literature may have been the most significant factor in shaping the image of science and scientists in the mind of the intelligentsia, it remains unclear how much impact works in *Iunost'*, *Novyi Mir* or *Nash Sovremennik* had on the wider population's perception of science. Marsh herself also notes that, although some works of literature present 'a much less favourable picture of the development of Soviet science in the Stalin and post-Stalin periods than is admitted in official propaganda', 'most published fiction on the theme of science and technology maintained its propaganda role.'<sup>36</sup> Thus, what readers found in works of 'high' literature was likely to complement, rather than contradict, the narratives found in the ideologically orthodox media; only those who read widely, and critically, were likely to have their view of science distinctively shaped by 'Thaw' authors such as Aksënov, Dudintsev and Granin, whose works provoke the most interesting discussions in Marsh's study.

Although there is no definitive study in English of the booming Soviet science fiction genre in this era, numerous works have been devoted to the subject, with most Western and émigré studies treating the genre as subtly subversive of official values and high-lighting 'satirical' or even 'dissident' themes in the authors' work.<sup>37</sup> However, this interpretation is often based on an over-emphasis on a few, scattered iconoclasts (most notably the Strugatskii brothers) and a constant search for novelty by critics. It ignores the political conformity, banality and stifling lack of imagination that is characteristic of most Soviet science fiction of this period. Most science fiction sat comfortably alongside official rhetoric and Socialist Realism, rather than providing an alternative vision of science, scientists and the future. I would therefore suggest that both Soviet 'high literature' and 'science fiction' (if the two are seen as separate, as they usually are) were more likely to complement themes from propaganda than contradict them; while there are counter-examples, these were the exception and would generally only be found by those actively seeking them, rather than contributing to the general population's understanding of science. That said, published fiction

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<sup>36</sup> Rosalind J. Marsh *Soviet Fiction since Stalin: Science, Politics and Literature* (Croom Helm: London 1986), pp.6, 305, 317

<sup>37</sup> For an official interpretation see A.F. Britikov *Russkii Sovetskii Nauchno-Fantasticheskii Roman* (Nauka: Moscow 1970); for émigré or Western views see L. Geller *Vselennaia za Predelom Dogmy: Sovetskaia Nauchnaia Fantastika* (Overseas Publications Interchange Ltd.: London 1985), John Glad *Extrapolations from Dystopia: A Critical Study of Soviet Science Fiction* (Kingston: 1984), Rafail Nudelman 'Soviet Science Fiction and the Ideology of Soviet Society' in *Science-Fiction Studies* Vol.16, No.1 (March 1989), pp.38-67, Richard Stites 'World Outlook and Inner Fears in Soviet Science Fiction' in Loren R. Graham (ed.) *Science and the Soviet Social Order* (Harvard: Cambridge 1990), pp.299-324

will largely remain outside the scope of this thesis, other than where it is of particular significance to the themes under discussion or can be seen in a new light on the basis of my own archival findings.

In addition to these studies of science in Soviet literature, Mark Kuchment has written on the emergence of a new school of scientific prose [*nauchno-khudozhestvennaia literatura*] in the 1960s, a phenomenon that he identifies primarily with the popular science writer Daniil Danin. Kuchment argues that the new popularity of scientific prose was due to ‘the enormous thirst for rationality that Soviet society experienced after decades of the irrational cult of Stalin’. He adds that it ‘reinstated a type of eighteenth-century French rationalism’ and a ‘return to a schematic intellect, to the idea of purposeful materialism and objective truth.’ I would question whether the division between the Stalin and the Khrushchëv eras was quite as stark as Kuchment suggests, and it is notable that, writing in 1990, he adopts one of the favourite themes of the *shestidesiatniki*, claiming that the 1960s made possible a rebirth of the genuine socialism which was characteristic of the ‘fabulous 1920s’. It should also be noted that it is hard to reconcile talk of a ‘cult’ of science, complete with priests and altars, with the ‘rationality’ which Kuchment identifies in scientific prose, and Kuchment himself acknowledges that scientific prose was ‘concerned more with presenting science in a favourable light than critically assessing scientific phenomena.’<sup>38</sup> One of the concerns of this thesis will be whether the ‘cult of science’ was itself a hindrance to the development of a genuinely rationalist, materialist worldview.

This thesis, while not attempting to engage in comparative study, is written with an awareness that all the leading states of the post-war era deliberately sought to create and project their own, characteristic image of scientific modernity. The presentation of a social system as modern, scientific and technologically advanced was intended not only to impress allies and rivals abroad, but also to foster a sense of the state’s legitimacy amongst its own citizens. Gabrielle Hecht, in her study of the French nuclear industry, has demonstrated the centrality of science to post-war French culture and has shown how it helped reshape both national and regional identities in the 1950s and 1960s. Hecht demonstrates that French nuclear reactors, through a carefully constructed media campaign, became local ‘tourist sites’, monuments to the ‘perfect reconciliation of tradition with modernity’. Apt symbols of this reconciliation were bottles of local wine

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<sup>38</sup> Mark Kuchment ‘Bridging the Two Cultures: The Emergence of Scientific Prose’ in Graham (ed.) *Science and the Soviet Social Order*, pp.325-40, here at pp.325, 339-40

labelled with images of nearby power-plants. This propaganda campaign created a drama in which 'technology would save France from economic and cultural disaster and redeem it after the humiliation of the Occupation'; the nuclear programme therefore 'epitomized the link between French radiance and technological prowess' and 'made nuclear technology both French and indispensable to Frenchness.'<sup>39</sup>

A number of works have drawn attention to the importance of science, and especially atomic power, in shaping politics and society in the United States in the decade that followed Hiroshima and Nagasaki. Allan W. Winkler has described how intersecting groups of American publicists, literary figures and scientists sought to educate the American public about the danger of atomic power, and the atomic bomb, in the post-war era. He concludes that 'most Americans responded to the nuclear age with a cheery optimism about the brave new world to come.' Simultaneously, however, the threat of an approaching apocalypse was expressed in novels, comics, music and films which acted as a 'safety valve' for post-war anxieties about science, fears that eventually re-emerged in the late 1950s as 'fallout became part of popular culture.'<sup>40</sup> Paul Boyer has described in detail how competing visions of a post-Hiroshima world emerged in the late 1940s. Some observers saw the Manhattan Project as a social system to be emulated in future and as proof of the strength of the 'melting pot' of ethnicities and of American democratic values, whilst others compared the Project to Dachau and Aushchwitz, as proof that modern science could reduce men to cogs in an inhuman killing machine (an approach echoed in Soviet propaganda). Boyer, like Winkler, notes that utopian visions of science dominated the public discourse of the late 1940s and early 1950s, and describes these as a product of anticommunism and part of 'the process by which Americans absorbed Hiroshima and Nagasaki into their moral history.' This scientific narrative was thus no accident, but a deliberate attempt to stifle debate and create an artificially homogenised political and social environment at the height of McCarthyism. Scientists became complicit in this process; having been the most prominent prophets of nuclear Armageddon in the immediate post-war years they were increasingly encouraged to contribute to a discourse that suggested that atomic power was inherently safe and atomic war should be faced with resolve rather than hysteria. However, Boyer notes that these utopian visions did not go unquestioned, as there was

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<sup>39</sup> Gabrielle Hecht *The Radiance of France: Nuclear Power and National Identity after World War II* (MIT Press: Cambridge 1998), pp.2, 5, 201, 203, 215, 219, 261

<sup>40</sup> Allan M. Winkler *Life Under a Cloud: American Anxiety about the Atom* (Oxford University Press: 1993), pp.5-7, 108, 210

‘a persistent undercurrent of doubt on the subject that quickly turned to deep skepticism.’<sup>41</sup> Echoing these conclusions, Michael Scheibach has noted that by the end of the 1940s atomic themes could be found in every area of the American high-school curriculum, and thus for ‘the generation coming of age with the atom, the messages emanating from atomic narratives formed an integral part of its socialization.’ Faced with the threat of nuclear war, ‘educators encouraged emotional control, peer solidarity and group involvement’, so that the generation coming of age in the 1940s and early 1950s ‘was forced to be optimistic in an era of prosperity built precariously over a foundation of fear and anxiety.’<sup>42</sup> Such studies therefore suggest that, even in democratic states, uncritical utopian discourses of scientific progress were not an unthinking reaction to the modern age but were politically engineered to advance particular ideological programmes. It must therefore be remembered that while certain aspects of Soviet scientific propaganda were unique to communist systems, popular scientific discourse did share common features across many societies.

## **PROPAGANDA AND THE SOVIET CITIZEN**

The third question that this thesis seeks to address is the relationship between ‘the people’ [*narod*] and the ideology of the Party-state, as expressed through the medium of popular science propaganda. This is an extremely difficult issue to assess accurately, given the existing source base, and the responses of the Soviet population to scientific propaganda can often only be sketched out on the basis of fragmentary evidence.<sup>43</sup> Thus, it is hardly surprising that popular responses to scientific propaganda have yet to be the subject of study. Paul Josephson describes the 1950s and 1960s ‘cult of science’ as ‘official but publicly embraced’, arguing it led to ‘general acceptance and scientific understanding among the Soviet population’, but without questioning whether acceptance of science and understanding of science are actually the same

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<sup>41</sup> Paul Boyer *By the Bomb's Early Light: American Thought and Culture at the Dawn of the Atomic Age* (Pantheon Books: New York 1985), pp.99, 114, 124, 138, 146, 333

<sup>42</sup> Michael Scheibach *Atomic Narratives and American Youth: Coming of Age with the Atom, 1945-1955* (McFarland and Company Inc.: Jefferson 2003), pp.10, 53, 208, 211

<sup>43</sup> A number of sources which would have been extremely useful in this respect, such as assessments of individual lectures by the ‘Znanie’ society, and public responses to them, were either never archived or were destroyed in the 1970s, it presumably having been decided that they were of no historical interest.

thing.<sup>44</sup> This thesis will examine whether the ‘cult of science’ fostered the emergence of a single, coherent worldview, as Josephson suggests, or whether the audience at which it was directed interpreted scientific propaganda in differing, and often contradictory, ways.

The fashion in which the Soviet population responded to the regime’s propaganda remains a highly controversial topic, and recently both Russian and Western historians have begun to re-examine standard interpretations of popular opinion during the Khrushchëv era. Earlier narratives, which describe a repressive state dismantling much of its coercive apparatus, and its ubiquitous leader cult, with the unanimous approval of the population, have been questioned.<sup>45</sup> Iurii Aksiutin’s work, based on questionnaires conducted in the 1990s, has revealed patterns within public opinion that are extremely complex and often contradictory. Aksiutin argues that the Khrushchëv era saw ‘a surge in social consciousness at all levels - social-psychological, moral and ideological’, and he suggests that events such as the removal of Malenkov as the Chairman of the Council of Ministers ‘provoked an ever-greater number of people to critical thoughts about the recent past and present.’ However, he also provides evidence that in some cases that are often part of the standard narrative of ‘the Thaw’ (such as the attacks on Western art after 1962), the sympathies of the broader population, if they were interested at all, often lay with the Party ideologues rather than the intelligentsia. Aksiutin concludes that some of the state’s liberalising policies ran contrary to the ‘stubborn prejudices of the masses’.<sup>46</sup>

Such accounts stress that Khrushchëv was himself increasingly unpopular from the late 1950s and that, with the ‘Stalin myth’ coming under increasing attack, the Soviet state suffered a severe crisis of legitimacy in the eyes of the population. Erik Kulavig, in a collection of case studies of dissent in the Khrushchëv years, has argued that ‘Russian society was much more than a passive object for the ideology and control emanating from the leadership.’<sup>47</sup> Boris Grushin’s recent work on popular opinion in the early 1960s raises some interesting questions about the effectiveness of Soviet propaganda, but also emphasises

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<sup>44</sup> Josephson ““Projects of the Century” in Soviet History”, p.558

<sup>45</sup> On the partial dismantling of the Stalin cult, and popular responses to this, see Polly Jones *Strategies of De-Mythologisation* and ““I’ve Held and Still Hold Stalin in the Highest Esteem”: Discussions and Strategies of Resistance to De-Stalinisation in the USSR, 1953-1964’ in E.A. Rees et.al. (eds.) *The Leader Cult in Communist Dictatorships* (Palgrave: Basingstoke 2004), pp.227-245

<sup>46</sup> Iurii Aksiutin *Khrushchëvskaiia ‘Ottepel’ i Obshchestvennyie Nastroeniia v SSSR v 1953-1964gg.* (Rosspen: Moscow 2004), pp.480-1, 484

<sup>47</sup> Erik Kulavig *Dissent in the Years of Khrushchev: Nine Stories about Disobedient Russians* (Palgrave Macmillan: Basingstoke 2002), p.158

that some of the values espoused in propaganda were indeed embraced by the population. Based on official surveys conducted for *Komsomol'skaia Pravda* during the 1960s, but considered ideologically suspect by the Party authorities, Grushin notes the 'intense aspiration of people to the acquisition of all kinds of knowledge' and argues that Soviet citizens went a long way to internalising much of what they learnt through official channels:

Whether people wanted to or not, whether they realised it or not, communist ideas were quintessential, the basic pivot of their spiritual and material, historic and everyday, public and private lives.... Their root was in no way constituted by the propaganda of the day [*tekushchaia propaganda*], but in the widespread and multi-levelled mythological system 'created over the ages', which included a plethora of material practices which were, to a high degree, attractive.<sup>48</sup>

This emphasises a fundamental division between an all-encompassing reality of socialist rhetoric, rituals and practices, which were broadly accepted, and the 'Party line' as presented in 'the propaganda of the day'. It also suggests that elements of the 'mythological system' could provide the conceptual framework for a critique of contemporary policies. Grushin therefore describes popular mentality in the early 1960s as 'semi-independent', noting that, while 'mentality was *to a high degree unfree*, dependent on the communist ideology which existed in society.... the dependence of the mentality of the masses on Agitprop was *far from absolute*'. Grushin, himself a prominent representative of the *shestidesiatniki*, therefore notes that 'the people's own unpreparedness' was the 'chief barrier' to the further liberalisation of the Soviet system in the 1960s.<sup>49</sup> His work echoes much recent research on the 1930s, especially that of Jochen Hellbeck, which has examined the cases of individuals who 'internalized authority' and sought 'positive self-integration' with the Stalinist regime. He uses these case studies to argue that at least some Soviet citizens came to acquire an 'illiberal modern selfhood.'<sup>50</sup> The argument that much of Soviet rhetoric

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<sup>48</sup> B.A. Grushin *Chetyre Zhizni Rossii v Zerkale Oprosov Obshchestvennogo Mneniia* Vol.1 (Progress-Traditsiia: Moscow 2001), pp.519, 521

<sup>49</sup> *ibid.* pp.524-5; emphasis in the original

<sup>50</sup> Jochen Hellbeck 'Speaking Out: Languages of Affirmation and Dissent in Stalinist Russia' in *Kritika* Vol.1, No.1 (Winter 2000), pp.71-96, here at pp.73-6, 90; for a critique of Hellbeck which, like Grushin, regards this process as 'impoverishment' rather than emancipation, see Eric Naiman 'On Soviet Subjects and the Scholars Who Make Them' in *Russian Review* Vol.60, No.3 (July 2001), pp.307-15, here at p.312

was internalised by its audience is also adopted by Vladimir Kozlov, who has examined violent ‘revolts’ of the 1950s; he claims that while such uprisings were aimed at the Party-state and its representatives, those in revolt ‘entered into a direct confrontation with the supreme authorities under the state’s own ideological slogans’ and this is therefore ‘evidence of the continued ideological stability of the regime’. Revolts were thus ‘a perverse form of reciprocal tie between the Soviet regime and the people, an irrational means for conveying signs of trouble’ and they strengthened ‘a specific form of cohabitation’ or a ‘social symbiosis’ between state and society.<sup>51</sup>

Such arguments have a number of implications for a work such as this. The first implication is that some Western political scientists studying the USSR in the 1960s and 1970s may have under-stated the significance of Soviet propaganda in shaping the worldview of the Soviet population. They tended to focus only on the obvious dissatisfaction of Soviet citizens with what was officially termed ‘political propaganda’, or what Grushin terms ‘propaganda of the day’.<sup>52</sup> Often, their works failed to acknowledge the fact that almost everything that the average Soviet citizen learnt about the wider world, about the arts, sciences and even sport, was refracted through the ideological prism of the official media. This is especially important in the case of science, which had the potential to underpin Soviet citizens’ understanding of how society, the world around them and individual human beings functioned. Propaganda and popular culture were inseparable in the Soviet Union, which is why both are the subject of this thesis. I do not therefore agree with the statement of Erik Kulavig that ‘citizens created a “second society” or under-society, the values of which ran counter to official ideology and finally undermined the regime.’<sup>53</sup> This seems to create an artificial division between ‘official culture’ and ‘counter-culture’, whereas I will argue the ideology of the Party-state and popular attitudes were in constant, and creative, interaction during the 1950s and 1960s. Especially in the field of science, which was genuinely popular in this era but constantly imbued with an ideological dimension, I believe that any attempt to separate propaganda from popular culture would be both artificial and futile.

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<sup>51</sup> Vladimir A. Kozlov *Mass Uprisings in the USSR: Protest and Rebellion in the Post-Stalin Years* (M.E. Sharpe: New York 2002), pp.311-4

<sup>52</sup> See, for instance, Stephen White ‘The Effectiveness of Political Propaganda in the USSR’ in *Soviet Studies* Vol.32, No.3 (July 1980), pp.323-48

<sup>53</sup> Kulavig *Dissent in the Years of Khrushchev*, p.158

The second implication is that, counter to what many contemporary commentators (both Soviet and Western) stated, propaganda did not simply 'succeed' or 'fail'; rather it provided much of the theoretical and rhetorical toolkit which Soviet citizens could use to analyse and interpret the surrounding world, regardless of whether or not they were consciously supportive of specific aspects of Soviet policy. Areas where the majority of Soviet citizens could not rely on their own direct experience, such as foreign affairs or science, were likely to be those that were most susceptible to being shaped by propaganda and official popular culture. Propaganda may not have shaped minds in the way that it was consciously intended to do, and it may therefore have fallen short of effective 'brain-washing', but it is also incorrect to believe that the population perceived it as fraudulent 'double-think' and could ignore it entirely.

## **THE STRUCTURE OF THE THESIS**

The first chapter of this thesis provides a broad description of how scientific propaganda was conducted in the USSR in the 1950s and 1960s, describing the structure, function and underlying assumptions of the popular scientific press and broadcast science programming. It also contains a brief analysis of standards in school science classes, in order in order to assess the contribution of formal education to the shaping a scientific 'worldview'. Special attention is paid to the origins and functioning of the lecture society 'Znanie', and the structural, economic and ideological difficulties that hindered its attempts to mobilise scientific public opinion are examined. The chapter concludes by examining the tensions that arose between the central bureaucracies responsible for overseeing scientific propaganda and those on the 'peripheries', who were involved with conducting that propaganda on a day-to-day basis.

The second chapter moves on to examine, on the basis of popular science works, educational curricula and film, the way in which the image of science and the scientist developed during the 1950s and 1960s. It is argued that science was increasingly portrayed not in a nationalistic context, or as the product of class-specific ideology, but as an international, cosmopolitan and objective pursuit. Science was considered to encourage moral virtue and was now seen as possessing validity even if it did not produce immediately obvious social and economic rewards. Scientists, as part of this process, came to be seen less as monolithic representatives of a nationalist or political agenda, and more as gifted, often iconoclastic, individuals.

Science was now not so much under attack from foreign ‘contamination’ as from the personal sphere, which threatened to subvert its collectivist, social ideals.

Having established a general context, chapter three then provides the first of three case studies of particular aspects of science propaganda, examining the use of science in the anti-religion campaigns that the Party initiated in 1954 and in 1958-1964. The chapter considers to what extent public scientific opinion could be mobilised for the production of atheistic propaganda, how that propaganda was conducted and whether it had any possibility of success given the unquestioned ideological assumptions upon which it rested. It also examines whether scientific-atheistic propaganda had a ‘dialectical materialist’ core or whether much of it was rooted in quasi-religious, pseudo-scientific ideas, thus allowing many Soviet citizens to integrate religious and ‘atheistic’ ideas without psychological dissonance.

The fourth chapter examines the Lysenko controversy, one of the chief causes of concern for public scientific opinion during the Khrushchëv years. This chapter follows the constantly evolving debate within the propaganda bureaucracy, educational élites and the scientific community regarding Lysenkoism, and demonstrates how both Lysenkoists and their opponents sought to utilise propaganda and popular culture in order to win this debate. It demonstrates that, in contrast to some previous assumptions, this conflict was not kept out of public sight, but could be followed in the popular scientific press and in literature. This leads us to question how effective and homogenous the propaganda establishment was when dealing with politically sensitive scientific matters.

Finally, the fifth chapter covers what is probably the most visible aspect of science in this era, the space programme. It examines the way in which the USSR’s space programme was presented as uniquely ‘Soviet’ or ‘Russian’ and how it was considered emblematic of wider social, national, moral and cultural values. It returns to develop themes first examined in chapter three, questioning how Soviet citizens incorporated space into their ‘worldview’ and whether the Soviet achievements in space furthered the development of a materialist understanding of nature. It also examines some of the controversial and idiosyncratic ideas about space put forth in the popular literature of the era, again raising issues considered in chapter four about the ability of scientific propagandists to utilise propaganda and popular culture in order to espouse their own, individual visions.

Several points need to be made about the terminology employed in this thesis and the chronological limits chosen for it. First, it must be acknowledged that the translation of the terms *nauka*, *nauchnyi* and *uchënyi* is not without its difficulties, while the more specific term *estestvoznanie*, referring solely to natural science, is rarely used in Russian. *Nauka*, *nauchnyi* and *uchënyi* can be translated as ‘natural science’, ‘scientific’ and ‘scientist’ respectively, but can also be taken to mean ‘learning’, ‘learned’ and ‘academic’, dependent on context. Many of the individuals and organisations that are the subject of this thesis freely used both meanings of all three terms, thus blurring a distinction that may seem crucial to English speakers. It is therefore important to note that the way certain terms, such as *nauchno-populiarnyi zhurnal*, *nauchnaia propaganda* and especially *nauchnyi ateizm*, have been translated is heavily dependent on context, and that such terms may have a subtly different nuance in their English translation.

I also feel that the chronological scope of this thesis requires some justification. The choice of ‘the Khrushchëv era’ as a convenient period for study initially seemed self-justifying, but I have increasingly come to feel that such a periodisation for the history of popular culture and propaganda is unhelpful. Many of the significant themes in this thesis have their roots at least as far back as 1947-8, when science became politicised in dramatically new ways due to the beginning of the Cold War. Furthermore, I believe that science retained its key role in public discourse at least until the Czechoslovak crisis of 1968, after which the Party-state began to be less publicly supportive of the scientific intelligentsia, and nationalistic or ‘patriotic’ themes became increasingly important in Soviet public culture. Therefore I acknowledge that the choice of 1953 and 1964 as the parameters of this thesis now seems somewhat artificial. However, bearing in mind that two of my chosen case studies (the debates around Lysenkoism and the public anti-religion campaigns) came to their ‘conclusion’ with the removal of Khrushchëv in October 1964, I have chosen to retain these chronological limitations.

## CHAPTER ONE:

### THE DISSEMINATION AND RECEPTION OF SCIENTIFIC PROPAGANDA

The propaganda apparatus of the Soviet state had colossal resources at its disposal by the 1950s and, at least at the highest echelons of power, it had a clear idea of the kind of messages it wished to convey to the general population. Theoretically, ideas and policies formulated within the Central Committee and Agitprop would simply and painlessly trickle down through the pyramidal bureaucratic apparatus until propaganda reached the population and was accepted at face value. This was also held to be true in the field of scientific propaganda; organisations such as the lecturing society 'Znanie' and the All-Union Astronomical Society, and journals such as *Znanie - Sila* or *Nauka i Zhizn*', would faithfully replicate the Party line, merely embellishing it with the necessary scientific details. The Soviet regime was keen to stimulate an interest in science amongst Soviet citizens, believing it would encourage them to develop new, economically-beneficial skills. Ideologues also claimed that scientific understanding would discourage belief in religion while fostering a romantic faith in the ever-nearing communist utopia, and that it would encourage trust in the correctness of the Leninist postulates of Party doctrine which were, after all, scientific [*nauchnye*].

There is also no doubt that there was fertile ground for such propaganda in the Soviet Union, and that a belief in scientific utopianism came naturally to many. The author of one letter, writing from Simferopol' on hearing of the death of Academician Kurchatov, the overseer of the Soviet atomic project, in 1960, addressed *Pravda*, the Central Committee, the Council of Ministers and the physicist Lev Artsimovich, stating: 'We simple people, without scientific degrees or even higher education, understood [Kurchatov] very well.' He therefore called for Kurchatov to be included on an alley of 'Golden Statues' at MGU 'made from bronze (and if possible, partially from gold), of those who in our time have given their lives completely for the good on the people, until the very last moment, upon THE ALTAR OF SCIENCE'. This alley would culminate in 'the greatest church of science in the world - Lomonosov Moscow State

University.<sup>1</sup> This was exactly the kind of rhetoric the Party itself espoused and wished to see adopted amongst the general population. Even though he did not understand the scientific details of atomic research, the author evidently displayed trust in those whom the state employed to tamper with the most potentially destructive forces in nature. His faith in science as a replacement for religion was unambiguous, as was his conviction that the USSR, Russia and Moscow were the very hub of mankind's scientific progress. It was a model for the kind of thinking the Party wished to encourage.

However, the Party's message was not always conveyed so successfully, nor interpreted and adopted with such clarity. The resources provided for scientific propaganda, though substantial, remained inadequate for the task of educating a vast country whose general population remained largely ignorant of basic scientific principles. The fact that scientific propaganda required the participation of the scientific intelligentsia, some of whom had an ambivalent attitude to the methods of the Party-state and many more of whom resented the way the propaganda bureaucracy treated them, severely complicated the issue of producing high-quality scientific propaganda. The Party's own changes of course on several sensitive scientific issues, most noticeably Lysenkoism, during the years of the Thaw also muddied the waters. Therefore the messages conveyed by propaganda on a day-to-day basis were often not those which the Party desired, leaving much of the population to incorporate a motley patchwork of scientific information into their pre-existing, and often pre-modern, 'worldview'. This chapter will therefore not only describe the scientific propaganda network of the 1950s and 1960s, it will also provide an analysis of the fundamental, structural problems that propagandists faced in the course of their work.

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<sup>1</sup> Letter of I.A. Shennikov, 10th February 1960: ARAN f.2/op.1-60/d.20/l.65

## THE POPULAR SCIENTIFIC PRESS

The Soviet Union produced a vast amount of popular scientific literature, the volume of which expanded continually during the post-war period. The network of publishing houses belonging to the state and 'voluntary organisations' was printing 1141 *nauchno-populiarnyi* books and pamphlets a year by 1950, with a total print-run of almost forty million copies. This already-impressive figure had expanded to 1919 titles by 1960, with a total print-run of over forty-four million copies. The range of titles not only expanded over this period, but the average length of works published also almost doubled, indicating a general trend away from brief, schematic pamphlets towards more specialised and sophisticated books which provided more in-depth analysis for an increasingly literate, diverse and stratified reading public.<sup>2</sup> Obviously, in this context, the term *nauchno-populiarnyi* embraced not only natural science but also popular books on history, art, literature and other academic fields. Nonetheless, there can be no doubt from the scale of this publishing activity that the state was committed to the self-education of the population on scientific topics and that popular science works were part of a mass, *narodnaia literatura*. While popular science books were more likely to be read by Party members than the rest of the population (a 1966 survey of readers in Moscow found the 21% of respondents who were Party or Komsomol members read 47% of the books on science and technology) they had broad appeal.<sup>3</sup> The books included within the *nauchno-populiarnyi* category were generally published by the popular press of the Academy of Sciences, and its republican and regional affiliates, or the Molodaia Gvardiia publishing house, which especially targeted younger readers. The publishing house of 'Znanie', which initially specialised in brief pamphlets, also diversified in the late 1950s, increasingly producing high-quality collections of articles and full-length books by respected authors. When the sheer quantity of these popular science books is added to the number of works of fiction which engaged in didactic scientific popularisation (examples of which will follow) then the vast amount of printed material available for those who sought to expand their scientific knowledge becomes obvious.

This vast variety of popular science books, which are too diverse to be briefly summarised, was supported by an increasingly vibrant periodical press, which is somewhat easier to describe. Stephen Lovell has noted that popular scientific journals were 'very respectable throughout the Soviet period' and that they

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<sup>2</sup> See V.S. Allairova and L.N. Kogan, *Nauchnaia Populiarizatsiia i Sotsialisticheskaia Kul'tura* (Nauka: Moscow 1979), p.117

<sup>3</sup> Ellen Propper Mickiewicz, *Media and the Russian Public* (Praeger: New York 1981), p.121

'not only provided general knowledge but also functioned as self-help literature.'<sup>4</sup> While this is true, the market for popular science journals in the USSR was based on a definite hierarchy of quality, largely defined by the demographic at which the publication was aimed. It seems to have been largely assumed that as readers aged and progressed through formal education, they would also progress from one journal to the next, becoming more 'cultured' with each step. According to this hierarchy, the journal at the top of the pile was undoubtedly *Priroda*, published by the Academy of Sciences and edited by a recognised figure within the scientific establishment: first, the mathematician and Arctic explorer Academician Otto Shmidt and then, following Shmidt's death in 1956, the geologist Academician Dmitrii Shcherbakov. *Priroda* was not, in the genuine sense, a popular science journal, as it was only published in a print-run of 15,000 copies and it generally had a highly specialised content. It was obviously aimed at scientists and academics who wanted to be able to follow major trends in fields where they could not find the time to consult specialist literature. However, an attempt was made to expand the appeal of *Priroda* from 1963, with monthly summaries of the journal being broadcast on the radio; this significantly boosted circulation and led to Shcherbakov receiving 1000 letters from readers a month.<sup>5</sup> The next journal down in the hierarchy was *Nauka i Zhizn'*, published by 'Znanie', a publication that remained clearly targeted towards the scientific intelligentsia. It was recommended reading for primary and middle school teachers, but it enjoyed a wider readership than *Priroda*. The journal's editorial board included a number of prominent scientists, but its chief editors, A.S. Fedorov (until 1961) and V.N. Bolkhovitinov (after 1961) were professional scientific journalists drawn from within the fields of education and publishing. *Nauka i Zhizn'* could justifiably be placed alongside *Ogonëk* and *Novyi Mir* as one of the publishing success stories of Khrushchëv years, attracting a broad readership and aspiring to be populist while retaining a high degree of technical, scientific and artistic quality. It enjoyed constant expansion during this period; in 1953 it published only 80,000 copies a month, but by the start of 1965 it was printing 1,750,000 copies a month.

Further down the hierarchy, the next rung was occupied by *Znanie - Sila*, a journal produced by the State Labour Reserve, and therefore targeted at young, working men, especially those who were seeking to improve their own technical qualifications. However, its readership evidently embraced others who were

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<sup>4</sup> Stephen Lovell, *The Russian Reading Revolution: Print Culture in the Soviet and Post-Soviet Eras* (Macmillan Press Ltd.: Basingstoke 2000), p.105

<sup>5</sup> Annual Review of Letters from Radio-Listeners, 1963: GARF f.6903/op.10/d.34/l.58

interested in scientific developments but fell outside the intelligentsia, such as schoolchildren, students, pensioners, draftees and the more aspirational members of rural communities. It contained a substantial amount of serious scientific material but was more overtly populist than *Nauka i Zhizn'*, with simplistic diagrams and a substantial diet of science-fiction stories. It also made use of illustrations of battling cosmonauts and alien monsters that would not have looked out of place in the American pulp magazines of the period. Generally *Znanie - Sila* was the most sensationalist of the popular science journals, often being criticised for printing inappropriate material, and unconventional artwork, which contrasted with the more sober articles and illustrations preferred by *Nauka i Zhizn'*. The original December 1959 issue of the journal had to be withdrawn and pulped after the editors allowed publication of an article by the science fiction author S.V. Al'tshuler which criticised Soviet scientists for 'narrow-minded empiricism' and for failing to convey to the public the inspirational power of science, calling for science fiction writers to take up this burden instead. This article, and previous instances of the publication of science fiction stories which contained 'political allusions', led to the journal being placed under the direct supervision of Glavlit for six months, which did not prevent it falling into error again in 1965, by publishing a science fiction story which the censors perceived as 'a call to revolt and a patently anti-Soviet work.'<sup>6</sup> The journal circulated 100,000 copies a year in 1953, a figure that had doubled by the end of the 1950s. The lowest rung of the ladder of popular science journals was occupied by *Iunyi Tekhnik* and *Tekhnika - Molodëzh'*, journals which were specifically aimed at schoolchildren, the former focusing mainly on printing blueprints and plans for would-be inventors and craftsmen.

Although these journals were aimed at different markets, they had a number of obvious features in common and relied on an overlapping community of journalists, illustrators and science fiction writers. They all combined propaganda of scientific knowledge with articles on topics of more day-to-day relevance, imposed by government policy; for instance, these journals regularly found space for long articles on aspects of the Five-Year Plans, often accompanied by detailed descriptions and schematics to demonstrate the functioning of glass factories, construction sites and concrete mixers. In this sense, such journals were

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<sup>6</sup> See V.Iu. Afiani (ed.), *Kul'tura i Vlast ot Stalina do Gorbacheva: Ideologicheskie Komissii TsK KPSS 1958-1964: Dokumenty* (Rospen: Moscow 2000) pp.227-9, which incorrectly claims that the journal was an organ of the 'Znanie' society, and Martin Dewhirst and Robert Farrell (eds.), *The Soviet Censorship* (Scarecrow Press: New Jersey 1973), pp.53-4.

obviously intended to provide a utilitarian, technical education for students and young workers, encouraging an interest in self-improvement and devotion to immediate economic goals. On the other hand, the journals increasingly included more esoteric articles on 'laboratory science' and subjects that fell outside the everyday experience of the readership. Topics covered often included the complexities of nuclear physics, the space race, biochemistry and physiology, suggesting that scientific knowledge in itself, and the 'worldview' that came with it, was itself seen as increasingly important, even when not of immediate productive use.<sup>7</sup> All these journals also carried articles which placed the sciences in an explicitly ideological framework, and there was therefore no sense in which popular science journals can be divided into 'liberal' and 'conservative' publications as has been done with literary journals of the period. Finally, the journals all increasingly carried 'utopian' articles on more purely fantastic topics, and science fiction literature. Indeed, *Znanie - Sila*, the most populist of the journals, often carried a typical socialist realist picture of a technologically-advanced Soviet industrial plant on the front cover, while devoting the back cover to a garish illustration of cosmonauts battling aliens with ray-guns.

The writers the journals employed did vary slightly, and they all had their regulars, but they drew their authors from a similar educational and occupational milieu. The majority of authors for all the journals (with the exception of the disreputable atheistic publication *Nauka i Religii*) were doctors or candidates of science, who described their own work, provided broad overviews of their field, reported on trips to foreign conferences or provided biographies and memoirs of their own mentors, the famous figures of Russian science. Some of these authors were themselves practising scientists, while others were professional science educators, who made a living through writing popular pamphlets, editing school textbooks and lecturing for 'Znanie'. These journals could also rely on semi-regular appearances on their pages by more respected figures within the Soviet scientific community, the hallowed academicians and correspondents of the various academies of science. However, it should be noted that some of the most famous Soviet scientists, who were known as trouble-makers, did not make regular appearances in the popular press. For example, the famous 'dissident' group of physicists within the Academy of Sciences, which included such brilliant scientists as Lev Landau, were notably absent from popular science works. Those authors who appeared in

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<sup>7</sup> This reversed the trend, in the 1930s, towards focusing on immediate utility in popular science propaganda, as identified by James T. Andrews in *Science for the Masses*, p.3.

the popular press with greatest regularity, such as the biologist Aleksandr Oparin, the geologist Dmitrii Shcherbakov or the astronomer Viktor Ambartsumian, although respected scientists, were also high-level bureaucrats within the science establishment, convinced defenders of the status quo within the Soviet hierarchy and committed to the ideology of the Party-state. These high-level figures could be seen repeatedly, providing articles on a regular basis for all forms of printed propaganda.

Soviet popular science was explicitly considered to be very different in nature to such works published in the West, with two critics later noting that in the West popular science was ‘a sea of frankly manipulative articles and books, serving to work over public opinion’ with the aim of giving the workers ‘just the scientific knowledge necessary for their productive functions and no more.’<sup>8</sup> Soviet popular science was to be an objective means of educating the population, and was not to indulge in rumour-mongering or the empty hunt for sensationalism, as the ‘gutter press’ of the bourgeois states was seen to do. For instance, *Znanie - Sila* took great pleasure in announcing the exposure of the Piltdown Man hoax in August 1954, arguing that sober Soviet scientists had never fallen for the scam, which had been blown up by the bourgeois press for personal gain: ‘In it, as in a drop of water, we see a reflection of the decay and reactionary character of bourgeois science.’<sup>9</sup> This supposed characteristic of the bourgeois press was parodied in a science fiction tale by Anatoli Dneprov in which the narrator is kidnapped by a mad scientist and forced to work, under a form of classical conditioning, for another kidnapped participant, playing the role of a ‘capitalist boss’. Having performed a number of role-plays, the narrator takes on the role of a journalist and, eager to please the ‘capitalist’ participant, and thereby avoid a vicious electric shock, he spews forth the following headline:

Special bulletin! An unprecedented sensation! As a result of radioactive mutations, new animal species have appeared! Talking donkeys! Mathematician dogs! Monkey-homeopaths! Singing pigs! Poker-playing roosters!<sup>10</sup>

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<sup>8</sup> Allairova and Kogan, *Nauchnaia Populiarizatsiia* pp.52, 55

<sup>9</sup> ‘Razoblachennyi Podlog’ in *Z-S* August 1954 (No.8), p.20

<sup>10</sup> Anatoly Dneprov, ‘The World in Which I Vanished’ in Vladimir Gakov (ed.) *World's Spring* (Macmillan: New York 1981), pp.61-75, here at p.73

Sadly, this is considered insufficiently sensationalist by the consumer. The exaggerations to which the Western press was prone could even be blamed for the troubles of the Soviet scientific community. The ideological campaign against cybernetics, which had originally been inspired by Soviet popular science writers themselves, was hastily revoked in a special issue of *Znanie - Sila* published in July 1956. Turning reality on its head, the author of one article blamed the campaign on Western popular science writers by noting:

The reports for such counter-productive appraisals [by Soviet authors] were dug up chiefly not from the work of scientists working on the development of principles of cybernetics, but on the imaginative reworking of their contents which were published in the mass press in certain countries. 'The revolt of the machines' and 'machines will rule people' and other such thoughts... were taken from these articles to be the conclusion of the cyberneticists.<sup>11</sup>

Such exaggerations and distortions of scientific reality were taken to be characteristic of Western reporting on science, but something to which the Soviet *narodnaia* press was immune. However, as we shall see, this was far from the truth, especially by the early 1960s.

Consistent attempts were made to expand the market for popular science publications during the late 1950s and early 1960s. Journals that had previously been relatively specialised increased their circulation and attempted to cover a wider range of subjects to draw in readers. *Izobretatel' i Ratsionaliser*, the journal of the Inventors Society, which had previously focused on narrowly technical articles, from the early 1960s began to publish articles on more abstract sciences and to include science fiction stories, obviously seeking to emulate *Nauka i Zhizn'*. During June 1961 a number of science and technology editors for Soviet newspapers wrote to Mikhail Suslov suggesting the launch of a new popular science journal, *Sputnik*, and arguing that popular science propaganda in the USSR failed to meet the demands of the population. They even argued that Soviet technological achievements were covered better in the West than in the Soviet Union itself, but that such reports were presented in a higher 'tendentious' fashion. This

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<sup>11</sup> A. Vladimirov, "'Bunt Mashina" i Kibernetika' in *Z-S* July 1956 (No.7) pp.7-9; on the campaign against cybernetics, see Slava Gerovitch, "'Russian Scandals": Soviet Readings of American Cybernetics in the Early Years of the Cold War' in *Russian Review* Vol.60, No.4 (October 2001), pp.545-68.

request was politely turned down, although *Nauka i Zhizn'*'s vast increase in circulation followed soon after the receipt of this letter.<sup>12</sup> A similar suggestion, also for a journal entitled *Sputnik*, came from the head of the Komsomol in September 1964: this journal would have been a weekly popular science supplement to *Komsomol'skaia Pravda* with a circulation of 500,000 copies. It would 'actively struggle with bourgeois ideology in science, and open up to young readers the romance of scientific search and discovery', reacting rapidly to new achievements. This suggestion was again ignored.<sup>13</sup>

The popularity of popular science publications in this period can be demonstrated by the difficulty that readers had in purchasing them, despite their ever-increasing print-runs. Only 3.5% of the total print-run of *Nauka i Zhizn'* could be bought on the open market, in kiosks, as all other copies had been pre-ordered. This humbled even *Novyi Mir*, 12% of the circulation of which could be bought on the open market even during its glory days in 1964. This point was courteously made to Andrei Tarkovskii when he requested an increase for circulation for his journal.<sup>14</sup> A letter received by state radio in January 1963, by an electrical engineer from L'vov, Kashchenets, stated bluntly: 'It is no secret that it is difficult to subscribe to such journals as *Nauka i Zhizn'*, *Tekhnika - Molodëzh'*, *Znanie - Sila, Izobretatel' i Ratsionalizator*, *Iunyi Tekhnik* and *Radio*.'<sup>15</sup> It can therefore be assumed that demand for popular science magazines continued to outstrip demand, even in the early 1960s, and copies were widely circulated in classrooms, student dorms and workshops, vastly increasing readership.

This brief description of the field of print propaganda of course ignores the fact that scientific propaganda was, as one of the most important aspects of public culture during this period, covered on a regular basis by virtually all newspapers and thick journals. Indeed, some of the most interesting articles on the role of science in society were printed in *Novyi Mir* or *Neva*, while newspapers such as *Izvestiia* or *Komsomol'skaia Pravda*, due to their nature, were often the first to react to important scientific news, although they often treated subjects in a superficial, slapdash fashion. The daily press substantially increased its coverage of scientific topics during the 1950s and 1960s: for instance, coverage of science and

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<sup>12</sup> Collective of Science Editors to M. Suslov, 28th June 1961: RGANI f.5/op.33/d.188/l.131-2, Snastin and Bogoliubov to CPSU CC, 1st August 1961: RGANI f.5/op.33/d.188/l.133

<sup>13</sup> S. Pavlov to CPSU CC, 2nd September 1964: RGANI f.5/op.55/d.76/l.70-2

<sup>14</sup> Information on the Circulation of Central Publications, 7th July 1964: RGANI f.5/op.55/d.83/l.103

<sup>15</sup> Annual Review of Letters from Radio-Listeners, 1963: GARF f.6903/op.10/d.34/l.46

education made up only 0.8% of reporting in *Pravda* in 1956, a figure which had risen to 11% by 1965.<sup>16</sup> This was probably a response to popular enthusiasm for the topic, as editors were not entirely indifferent to their readers' own interests. A survey conducted for *Izvestiia* in 1966 indicated that 49% of its readers read the articles devoted to science. Although this was less attention than was devoted to news on Asia, Africa or Latin America, satirical stories or articles on social themes it was greater than that shown to sports, events in the Peoples' Democracies, literature and the arts, economics, politics or editorials.<sup>17</sup> Therefore these articles were of significant interest to a broad section of the population, a fact that was recognised by editors, and they are widely referred to throughout this thesis.

### SCIENCE ON RADIO AND FILM

Radio provided one of the most effective means of reaching a broad audience within the USSR; by 1957 there were 23 million sets across the country wired up to local distribution networks, and another eight million wireless radios.<sup>18</sup> Radio was a source of both information and entertainment for those amongst the population who read very little, and it was accessible both at home and in the workplace. Devoting a substantial amount of airtime to popular science broadcasts and scientific news, radio thus provided the primary, or sole, source of information on science for much of the population. Radio broadcasts on science tended to be dominated by ten-minute features devoted to a single topic, often featuring interviews with prominent scientists who took listeners for tours around their laboratories. Radio producers also tried to be responsive to listeners' interests, commissioning programmes in response to listeners' queries and keeping them up to date with new innovations with the regular series, 'News of Science and Technology'. The schedule for September 1959 was fairly typical, including a question-and-answer programme on the Tunguska meteorite, a report from a cosmology congress, a programme on the merger of science and industrial production, several programmes on the space race, a report on the atomic ice-breaker 'Lenin' and

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<sup>16</sup> Angus Roxburgh, *Pravda: Inside the Soviet News Machine* (Victor Gollancz: London 1987), p.277

<sup>17</sup> Mark W. Hopkins, *The Mass Media in the Soviet Union* (Pegasus: New York 1970), p.317

<sup>18</sup> Alex Inkeles, *Public Opinion in Soviet Russia: A Study in Mass Persuasion* (Harvard University Press: Cambridge MA 1967), p.333

an hour-long adaptation of Ivan Efremov's science fiction novel *Tummanost' Andromedy*.<sup>19</sup> Alongside such items there were also regular cycles of lectures on subjects considered of special importance, such as Michurinist biology or anti-religious propaganda, commissioned from leading scientists through the 'Znanie' organisation. This national provision of scientific propaganda was also supplemented by regional broadcasting, which often relied on taped lectures by local 'Znanie' lecturers.

The letters received from listeners demonstrated a consistent interest in science programming. During November 1958, a typical month, the science section received 638 letters; this was less than those received about music, youth programming or news, but far outstripped responses to programmes on agriculture, industry or sport. However, it should be noted that the majority of letters on science received in any month tended to be responses to programmes on medical topics, and were, in effect, requests for a 'second opinion' from concerned listeners who were unwilling to trust their own doctor. For instance, in November 1958 one programme alone, 'O Virusom Grippe', by Correspondent of the Academy of Medicine Smordintsev, received 150 letters.<sup>20</sup> However, even excluding these pleas for medical advice, science programmes continued to provoke interest from listeners, with attention predictably being devoted, at least from the late 1950s, to the successes of the Soviet space programme.

Alongside brief topical reports and longer cycles of lectures, a special section was also established, headed by R.R. Glier, to produce what became known as 'scientific-artistic' radio plays. Glier later stated the productions were intended to fill a gap, as short reports on science did not 'show sufficiently deeply, and most importantly, emotionally, the great achievements of science, the humane tradition laid down by its greatest representatives, taking the research process from its source to the result of the discovery.'<sup>21</sup> The first play prepared by the section, about the radio pioneer Aleksandr Popov, was broadcast on Radio Day, 4th April 1952, and received high praise in the press and from listeners; five more such productions followed by 1957, and then another 42 by the end of 1964. These productions tended to be hour-long dramatised biographies of Russian scientists, although a few of the plays were serialised. They attempted to

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<sup>19</sup> Radio Broadcast, 13th September 1959 'Polet Tantry': GARF f.6903/op.12/d.394; the didactic intentions of Soviet science fiction are demonstrated by the fact that such dramatisations were commissioned by the science, rather than drama, section.

<sup>20</sup> Review of Letters from Radio-Listeners, November 1958: GARF f.6903/op.10/d.14/l.1, 25

<sup>21</sup> R.R. Glier, *Radioteatr i Nauka: Iz Opyta Nauchno-Khudozhestvennoi Radiodramaturgii* (Iskusstvo: Moscow 1973), p.3

combine the drama and atmosphere of period drama with the explicitly didactic task of educating the listener in the scientific topic at hand. The producers of the programmes sought advice from scientists and from employees of Moscow State University and the Institute for the History of Science and Technology.<sup>22</sup> The early productions were considered excessively didactic, but they gradually became more dramatically interesting, and won broad approval from the public. The response to the play *Vremia i Zvezdy*, for instance, devoted to the revolutionary and astronomer P.K. Shternberg and broadcast as part of the celebrations for the 40th anniversary of the October Revolution, was universally positive, with some of the praise bordering on the hysterical. Comrade Almazov of Moscow wrote:

I want to grab each one of you and cover you in kisses. Each of your broadcasts is like a sun, illuminating us and burning within us.... Science and art merge in these broadcasts, fulfilling and enriching one another. Through emotion and understanding - that's what's important.

E.Ia. Tauber from Novosibirsk added:

I listened to your interesting, and I might say enlightening, radio programme about Academician Shternberg. We didn't know that the famous Academician was a communist, a participant in the October Revolution. I really ask you, if possible, to transmit this radio programme again.

And Belikov, of Taganrog, confessed:

I'll be frank, I've wanted to know something about Shternberg for a long time. Now I'm satisfied, I'm clear who Shternberg was now.... A big thank you to the author of this radio-play!<sup>23</sup>

The plays the section produced were considered successful enough to be translated for production in the People's Democracies, and by the early 1960s the section had also expanded to produce adaptations of science fiction stories by the Strugatskii brothers and Ivan Efremov.

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<sup>22</sup> *ibid.*, pp.9, 14, 53, 56-63

<sup>23</sup> Review of Letters from Radio-Listeners, November 1958: GARF f.6903/op.10/d.14/l.21-2

The role of documentary films and television in propagandising scientific knowledge is largely outside the scope of this thesis, but the significance of such materials cannot be entirely ignored in any such study. The production of popular science films had, like so many other areas of the cinema industry, reached crisis levels by the time of Stalin's death. During 1952 only six popular science films were released, of which only one, on the eclipse of 25th February, could be called 'categorically scientific'. This output, which was clearly insufficient, led to many cinemas abandoning the screening of outdated popular scientific films entirely, in favour of old artistic and dramatic films.<sup>24</sup> This provoked a decree from the Council of Ministers on 16th January 1954, criticising the fact that even those few films that were being produced were gathering dust on shelves and that 'Znanie' was making insufficient use of documentary films in its lectures. Cinemas were ordered to show either popular documentaries or newsreels prior to the screenings of feature films.<sup>25</sup> The production of popular scientific films did increase greatly in the late 1950s and by 1958 had reached 394 films a year, produced by five studios across the USSR that employed 500 people. Productions included the regular cinema-journal *Nauka i Tekhnika*, which had been launched in the 1930s, and the quarterly children's cinema-journal *Khochu Vse Znat'*. During September 1958 Moscow hosted the Twelfth Congress of the International Association of Science Cinema, and in 1959 the Lomonosov Award was launched for the best Soviet science film produced each year.<sup>26</sup>

Science documentaries were not only produced in greater numbers but were now, according to critics, intended to be watched in a new way. Unlike the cinema-journals developed during the Stalinist 1930s, which were effectively bombastic and superficial parades of new Soviet technological achievements, film-makers of the late 1950s and 1960s encouraged viewers to empathise with scientists, and adopt their logical, critical model of thought. One reviewer wrote in praise of the 1962 films *K Tainam Dolgoletii* and *Otkrytie Podskazyvaet Priroda*:

Everything was designed to stimulate the viewer's 'researching instinct' [*issledovatel'skii instinkt*], not to give a full, exhaustive answer, but to force the viewer himself to draw the necessary

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<sup>24</sup> A. Shelepin to M. Suslov, 7th May 1953: RGANI f.5/op.17/d.449/l.189-91

<sup>25</sup> Council of Ministers Order No.73, 16th January 1954 'O Rasheranii Pokaza Nauchno-Populiarnykh, Vidovykh, Khronikal'no-Dokumental'nykh i Uchënykh Kinofil'mov': GARF f.9547/op.1/d.989/l.1-2

<sup>26</sup> A. Zguridi and I. Vasil'kov, *Nauchnoe Kino v SSSR* (Iskusstvo: Moscow 1959), pp.10, 17, 20, 28, 32

conclusions - it is precisely such an approach which allows us to activate the viewer, and you know it's not often we achieve such an effect.<sup>27</sup>

Such rhetoric implied that cinema audiences of the Khrushchëv era should be active, rather than passive, able to creatively engage with scientific issues. Soviet citizens were no longer to act as bystanders to a technological spectacle, but were to adopt a rational mode of thought appropriate for those living in a modern society and facing new scientific innovations on a daily basis.

It should also be noted that the popular science genre, although dominated by short films, also produced 'scientific-artistic' works similar to those broadcast on the radio, lengthy dramatised pieces which were nonetheless intended primarily as a vehicle for scientific education. One example of such a film was the 1955 childrens' film *Povest' o Lesnom Velikane*. Made by the documentary film pioneer A. Zguridi, it starred a gang of children who helped a group of biologists seeking to domesticate deer and featured elements of an adventure narrative (fires, wolves and poachers), lingering landscape photography characteristic of Zguridi's documentary work and a lengthy exposition on Lysenkoist themes. However, some critics called into question its value for either scientific education or entertainment.<sup>28</sup> Such films, flawed though many of them may have been, did demonstrate the increasing health and diversity of popular science films by the later 1950s.

Television was a considerably less significant medium than radio, print or cinema during this period, and only entered into the life of the 'average Soviet citizen' in the late 1960s and early 1970s. Television did broadcast popular science programmes during this period, and later became the home of Sergei Kapitsa's famous series, *Ochevidnoe - Neveroiatnoe*. However, for the vast majority of the population, television prior to 1964 was not a means for popular science propaganda, but one of its subjects. Therefore any consideration of its content falls outside the scope of this thesis.

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<sup>27</sup> E. Zagdanskii, 'V Poiskakh Novykh Reshenii' in *Iskusstvo Kino* December 1963 (No.12), pp.83-8, here at p.87

<sup>28</sup> N. Vorontsov, I. Turov and L. Kozarovitskii 'Ni Nauki, Ni Iskusstvo' in *Sovetskaia Kul'tura* 21st July 1955, p.2

## THE IMPACT OF FORMAL SCIENTIFIC EDUCATION

Before looking at the impact of scientific propaganda on the population, and especially the impact of lecture propaganda, it is worth considering the general educational level of the population in relation to the natural sciences. It should be remembered that in rural areas, where 'Znanie' did much of its work from the 1950s, many older members of the population had received little or no formal education and their scientific knowledge was often based entirely on unrelated scraps of information derived from newspapers, lectures and radio broadcasts. Lecturers from 'Znanie' were well aware of this and their rhetoric often echoed that of the urban intelligentsia of the 1870s, 'going to the people' in an effort to drive out darkness and superstition and bring the fruits of the Enlightenment in their place. Their discussions often emphasised the child-like ignorance of the rural *kolkhozniki*, an ignorance that would have been tolerated in earlier years, but would undermine economic development in an era when the Party hoped to modernise agriculture through the application of modern, scientific techniques. Following a decree of the December 1963 Central Committee plenum, ordering increased attention to chemical fertilisers, 'Znanie' lecturers met to discuss the implementation of a widespread campaign to encourage 'chemical literacy'. There were clearly-expressed fears that fertilisers might be misused, or even present a potential danger, in the hands of ignorant *kolkhozniki*; as one speaker noted, soon after the decree was issued 'chemists began to worry about how these chemicals would be used in the hands of *kolkhozniki*. Each of us can imagine what will happen if a mass of chemicals end up in a village in the hands of illiterate, unschooled people.'<sup>29</sup> However, while the intelligentsia's evaluation of the intellectual capabilities of the rural *narod* may have been unjustifiably pessimistic, there is much evidence that even the most rudimentary scientific concepts had failed to reach much of the population; for example during April 1963 several radio listeners sent letters to the broadcasters querying whether mining was reducing the weight of the Earth, and another listener asked for an explanation of how 'heat' was transformed into 'cold' and back again.<sup>30</sup> Examples of similar misconceptions will appear again later in this thesis.

It must also be acknowledged that, although the Soviet higher education system was producing some of the world's best scientists in these years, the standards of science teaching in most primary and

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<sup>29</sup> 'Znanie' Presidium Meeting, 25th December 1963: GARF f.9547/op.1/d.1307/l.75

<sup>30</sup> Annual Review of Letters from Radio Listeners, 1963: GARF f.6903/op.10/d.34/l.157, 158, 184

middle schools, especially in rural areas, remained very low. The first problem was the lack of qualified teachers; during the 1953 school year around a third of those teaching physics and mathematics lacked formal qualifications, while 1553 chemistry teachers in the RSFSR had only middle, or incomplete middle, education and were considered by inspectors to require 'serious specialist training not only on questions of polytechnical education but also on possession of the basics of chemistry.' These problems were compounded by the ideological distortions imposed on scientific disciplines during the *Zhdanovshchina*. During 1954 it was noted that chemistry teachers often began teaching without ever having heard the names of the leading figures in the history of chemistry, while many teachers complained they could not access vital books on their subject, as they were relegated to the restricted sections of libraries, the *spetskhran*, and could not be ordered.<sup>31</sup> The poor educational level of many local schoolteachers also had an inevitable impact on the quality of adult education provided by organisations such as 'Znanie', given that most science lectures in rural areas would be delivered by science teachers from the local schools.

The second major problem was the lack of scientific equipment: in 1953 36% of middle schools (48% in rural areas) and 89.5% of six-year schools lacked a physics laboratory, and over half of them lacked any means of utilising visual aids, such as film or slide projectors. Many schools in rural areas lacked electrical current, and teachers were expected to show great inventiveness in building intricate models and mechanisms at home, and at their own expense, to demonstrate to their classes. The situation was no better in chemistry: 64% of middle schools and 97.5% of six-year schools lacked a chemistry laboratory, and even those schools which possessed a laboratory were deficient in weights, metals, glassware and acids, while teachers had to find 'unsuccessful' replacements for laboratory alcohol. It was noted that many students could not apply what they had learnt and 'confuse atoms and molecules, atomic and molecular weight, bases and acids....' Biology was in a similar situation: 62% of schools did not have a human skeleton and 52% had no microscopes.<sup>32</sup> It was also acknowledged that, even in schools where

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<sup>31</sup> Session of the Chemistry Education-Methodological Council of the RSFSR Ministry of Enlightenment, 9th-10th December 1954: GARF f.A-2306/op.72/d.3704/l.72; for more on science in education in this era, see Michael Froggatt, 'Renouncing Dogma, Teaching Utopia: Science in Schools under Khrushchev' in Polly Jones (ed.) *The Dilemmas of De-Stalinization: Negotiating Cultural and Social Change in the Khrushchev Era* (Routledge: London 2006), pp.250-66

<sup>32</sup> Reports on Standards in Science Teaching, 1953: GARF f.A-2306/op.72/d.2868/l.3-4, 17-21, 48; these figures are only for the RSFSR, rather than the USSR as a whole.

teaching films could be shown, the majority of them were poorly-made and out-of-date.<sup>33</sup> The problem was not so much the shortage of teaching aids, as the discrepancy between the reality of Soviet classrooms and the textbooks that students and teachers relied upon. Textbooks and teaching programmes took it for granted that each pupil would have access to their own telescope, microscope and electric motor, and described experiments with advanced equipment such as Wilson chambers, which hardly any Soviet schools would have possessed. This situation had improved somewhat by the early 1960s: an assessment of schools in Ivanovo *oblast'* in 1960 found that two thirds had physics laboratories and all now had electricity, but the biology section's greenhouse at one school was being used for the commercial growing of spring-onions.<sup>34</sup> The absence of scientific apparatus in many schools led textbook authors to recommend a wide variety of 'experiments' that students could conduct at home, such as studying convection currents with candles. Even if the average student were allowed to conduct such experiments at home, many of them were potentially dangerous if unsupervised.

These deficiencies illustrate the background against which scientific propaganda was conducted and the fact that the Soviet Union, in the 1950s, was still divided into two worlds. The first world was the world that scientific propagandists came from, the world of sputniks, atomic reactors and advanced chemical laboratories. The other world was a backward rural environment, where electric lighting, radio, television and modern agriculture remained exceptions rather than the norm. The inhabitants of this second world were undoubtedly interested in the world of science, but often lacked the formal scientific education and modern 'worldview' to interpret what they were told in the way ideologues expected. This was a fact that propagandists learnt time and time again when these two worlds were forced to interact.

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<sup>33</sup> For instance, see I.I. Sokolov, *Metodika Prepodavaniia Fiziki v Srednei Shkole* (Uchpedgiz: Moscow 1951), pp.150, 175

<sup>34</sup> Information on the Condition of Educational Work in Eight-Year Schools in Ivanovo Oblast', 1960: GARF f.A-2306/op.72/d.7740/l.19, 26

## ‘ZNIANIE’: ORIGINS AND ORGANISATION

The ‘Znanie’ society was one of the most significant institutions in post-war Soviet society devoted to education, propaganda and indoctrination, yet it has so far received little attention from political scientists and historians. One major study of propaganda, published in the 1970s, paid only cursory attention to the organisation and incorrectly assumed ‘ZNANIYE’ [sic] to be an acronym, while another work stated inaccurately that the ‘promotion of atheistic propaganda [was] the Society’s original and most distinctive function.’<sup>35</sup> Based on such an assumption, ‘Znanie’ has tended to be studied only by historians of Soviet atheism, who have assumed it was a linear descendent of the League of the Militant Godless, and lacked a distinct identity and programme of its own.<sup>36</sup> One exception to this rule is provided by David Currie Lee’s analysis of the People’s Universities, with which ‘Znanie’ was closely associated; however, while acknowledging in passing that ‘Znanie’ and the People’s Universities had a ‘significant political education component’, his work focuses primarily on ‘apolitical’ education programmes.<sup>37</sup> A recently published Russian study of ‘Znanie’ does provide a more detailed analysis of the society’s origins, but it otherwise makes use of a very narrow selection of archival documentation, analysing the work of the society in purely quantitative terms.<sup>38</sup> Therefore, what follows here is a brief analysis of ‘Znanie’s’ origins, objectives and membership, based on a comprehensive analysis of archival sources, in order to place its work in propagandising science and technology in context.

‘Znanie’ had originally been founded ‘on the initiative of the Soviet intelligentsia’ in the summer of 1947, at the peak of the *Zhdanovshchina*. Its creation was, in fact, engineered by Mikhail Suslov and the *apparat* of Agitprop, and the society was intended to unite the scientific and artistic intelligentsia, encourage them to participate in lecture propaganda and therefore discipline them and subordinate them to

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<sup>35</sup> Gayle Durham Hollander, *Soviet Political Indoctrination: Developments in Mass Media and Propaganda since Stalin* (Praeger: New York 1972), p.151, Stephen White, *Political Culture and Soviet Politics* (Macmillan: London 1979), p.80; despite mentions of scientific-atheistic propaganda in the decree which established ‘Znanie’ it did not begin serious work in this field until 1949-50.

<sup>36</sup> For an example, see David Powell, *Soviet Antireligious Propaganda: A Study of Mass Persuasion* (MIT Press: Cambridge MA 1975)

<sup>37</sup> David Currie Lee, *The People’s Universities of the USSR* (Greenwood Press: Connecticut 1988), p.12

<sup>38</sup> A.V. Andreev, ‘Vsesoiuznoe Obshchestvo po Rasprosrneniiu Politicheskikh i Nauchnykh Znanii (VOPRPINZ) i Populiarizatsiia Fiziki’ in V.P. Vizgin and A.V. Kessenikh (eds.) *Nauchnoe Soobshchestvo Fizikov SSSR, 1950-1960-e. Gody: Dokumenty, Vospominaniia, Issledovaniia* (Russkaia Khristianovskaia Gumanitarnaia Akademiia: St. Petersburg 2005); Andreev only makes use of the society’s annual statistical reports and a selection of documents related to 1947-8.

Party interests. Although the Lysenkoist August Session would not occur for another year, the scientific intelligentsia was already under considerable covert and overt pressure. The first of the so-called 'honour courts', intended to bring Soviet scientists to heel, was in the planning stages. According to a decree of the Council of Ministers, issued on 29th April 1947 and 'approving' the 'request' of the intelligentsia to found the society, it was to inherit the resources of the All-Union Lecture Bureau of the Ministry of Higher Education and the League of the Militant Godless, whose functions were to be assumed by the new society.<sup>39</sup> Speaking at the first general organisational meeting of the society, in June 1947, the Stalinist 'philosopher' Mark Mitin emphasised the society was neither an élite organisation of the country's premier intellectuals, such as the Academy of Sciences, nor a 'mass organisation' which would reach out into the general population. Instead, it was to unite the diverse groups and strata within the Soviet intelligentsia for propaganda work.<sup>40</sup> Sergei Vavilov, who was a leading physicist, a politically reliable bureaucrat, the President of the USSR Academy of Sciences and a noted populariser of science, was elected the first chairman of the society at its founding congress, which met that summer. However, the hope of the society's *apparat* that after Vavilov's death in 1951 the precedent of having the country's leading scientific spokesman actively leading 'Znanie' would be continued was thwarted. Instead, the Central Committee selected Aleksandr Oparin, a prominent biologist and supporter of Lysenko, as Vavilov's successor.<sup>41</sup>

The society was to expand rapidly, especially after 1949, and was to secure a virtual monopoly on the provision of public lectures during the course of the 1950s, becoming an essential component of the Soviet propaganda system until the demise of that system in 1991. The scale of its operations expanded continuously, and the society's leaders never ceased boasting of its vast membership and scope: by 1962 the society boasted 72 *oblast'*, republic and *krai* organisations, 368 town sections, 1946 *raion* sections, 7195 primary organisations in VUZ and scientific institutions, 6070 groups in industry, transport and construction, 26,926 organisations in *kolkhozi* and *sovkhozi*, two Houses of Technology and 116

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<sup>39</sup> Council of Ministers Order No.1377, 29th April 1947 'O Vsesoiuznom Obshchestve po Rasprostraneniuiu Politicheskikh i Nauchnykh Znanie': GARF f.9547/op.1/d.2/l.1-3

<sup>40</sup> Mitin, Speech of 7th June 1947: GARF f.9547/op.1/d.11/l.36-7

<sup>41</sup> Society Leaders to Malenkov: 20th February 1951: GARF f.9547/op.1/d.456a/l.86, 'Znanie' Presidium Meeting of 20th March 1951: f.9547/op.1/d.460/l.191-2; for a biographical study of Vavilov, see Alexei Kojevnikov, 'President of Stalin's Academy: The Mask and Responsibility of Sergei Vavilov' in *Isis* Vol. 87, No. 1 (Jan. 1996), pp.18-50

planetaria.<sup>42</sup> The society's name was formally changed to 'Znanie', the title by which it had always been informally known, on the request of its then chairman, Nikolai Semënov, in 1963. This was due to the fact that its original emphasis on political education alienated many of the foreign educational organisations with which it now had to work.<sup>43</sup> However, its essential character remained unchanged, and the change in nomenclature saw no diminishment in the attention it paid to political propaganda. The work of 'Znanie' is at the centre of much of this thesis, and therefore a description of its basic functions, and some of the operational difficulties it faced in its work, is essential at this stage. However, it is worth recalling that the scope of 'Znanie's work went well beyond science and technology, embracing the arts, economics, moral advice, politics, international affairs, sports and military affairs. Some of the issues raised here are specific to scientific propaganda, but others are provided as a background to what follows, and can be applied in general to the work of 'Znanie' in other fields of enlightenment and propaganda in this era.

The society, although 'voluntary' and 'independent', replicated the structure of the CPSU by imposing a hierarchical system of committees at town, *raion*, *oblast'*, republic and union level, formally subordinate to regular congresses and plena occurring in Moscow and obeying the Leninist principle of democratic centralism. It originally relied upon large-scale groups in cities and provincial towns, but from 1949 it allowed groups to be opened in any organisation that boasted ten or more members, extending the reach of the society beyond its original remit. This network of regional and local committees organised the provision of material support and transport for lecturers, ran small publishing concerns and carried out negotiations with local 'customers' who ordered lectures. Local organisations relied on a group of 'scientific-methodological councils' to determine the actual content of lectures; these groups, organised by discipline, supposedly united the cream of the local intelligentsia, who sought suitable lecturers, chose titles for lectures and reviewed texts prior to reading. While the *apparat* of each society was generally made up of full-time bureaucrats, often drafted from within the Party itself, these councils were made up of genuine scientists and specialists, whose interests and objectives often failed to coincide with those of the bureaucrats to whom they answered. The whole apparatus of 'Znanie' was overseen by Agitprop, to whom

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<sup>42</sup> Artobolevskii to V.I. Kochemasov, 4th September 1962: GARF f.A-561/op.1/d.590/l.6-8

<sup>43</sup> Semënov to CPSU CC, 21st February 1963: GARF f.9547/op.1/d.1310/l.6; for the sake of convenience, throughout this thesis I have chosen to use the title 'Znanie' for the society, although this was not formally its designation before 1963.

it reported on all major decisions and relied upon for support in the event of bureaucratic turf-wars. The day-to-day work of the society was organised by a central *apparat* based in the Moscow Polytechnical Museum, literally within a stone's throw of the Central Committee headquarters on Staraia Ploshchad'. The bureaucrats who worked here were drawn from the higher levels of the Party organisation, and boasted pay and perks comparable with those in the higher echelons of state ministries, privileges that they protected jealously.

The society provided a variety of different lectures. It provided public lectures, generally held in the public halls of larger cities and provincial centres, which attracted the largest crowds and the greatest names from their respective fields as speakers. The society was reimbursed for these lectures by ticket sales and initially lecturers received a percentage of the takings, usually around 60%. These lectures obviously tended to be the most populist, covering the most topical events and providing an occasion for listeners to question lecturers on controversial new aspects of government policy. The society also provided 'closed lectures' for enterprises and public organisations on a negotiated basis, and paid for by those organisations. These lectures tended to be more specialised and utilitarian; for instance the directorate of a large steelworks would arrange for 'Znanie' to provide a cycle of lectures on new methods in the steel industry for its employees. However, it might equally well pay for a series of lectures on the space programme, atomic power, international politics or the works of Tolstoi. Arranging lectures in these situations 'Znanie' often liased with the scientific-technical societies, such as the Mendeleev Society that operated in the chemical industry. This presented a problem when such organisations resented 'Znanie' operating in their field, a problem that was largely solved when the scientific-technical societies entered 'Znanie' en masse in 1959. The third type of lecture provided was free lectures, which tended to be provided in rural areas and made up an increasing proportion of the work of 'Znanie'. Typically these lectures would be put on in *kolkhozi* that were too poor to provide payment for the lecturers themselves. However here it was rarely an eminent scientist who came to speak, the speaker more usually being the agronomist, doctor or physics teacher from the next village but one, 'encouraged' to speak without payment from the society and considered lucky if they received something towards the cost of their travel. Under guidelines drawn up in 1949, the pay scale for lectures provided also varied enormously; an Academician speaking at the request of an organisation in a provincial town would receive a payment of 450 roubles, while a candidate of science

delivering the same lecture would receive only 100 roubles.<sup>44</sup> Therefore, the type of lectures the society provided varied enormously, as did the kind of lecturers who gave them, and the audience they could expect to draw.

The lectures provided by the society were generally written by the lecturers themselves, although initially the society also had a 'passive' membership of those who were only permitted to read texts prepared by other, more educated members. Authors had to present their texts for review by the relevant scientific-methodological council of the local branch organisation, who would often demand rewrites or reject the text altogether. This system was not always observed in practice, especially when lecturers were being asked to present lectures explaining unexpected shifts in Party policy, in which case topics were often included in lecture schedules prior to the delivery of a text. This regularly led to recriminations within the society, as lecturers who had misinterpreted Party directives were often taken to task in the local press. Once a lecture had been approved it was 'toured' to numerous venues and usually read up to ten or twelve times, although some lecturers would reuse the same text twenty or thirty times before different audiences. Reviewers also regularly attended lectures, assessing their content, the style and diction of lecturers, and their ability to handle questions from an audience in an ideologically-appropriate fashion. Lecturers might also be summoned to receive feedback from audiences, although it was found that lecturers who were subjected to this practice were often unwilling to read further lectures. The best texts would then be published by branches of the society, whose publishing resources varied enormously. The central society boasted its own publishing house, while *raion* societies were often forced to rely on rotators that were requisitioned for other purposes (such as the 1959 census), leaving the society unable to produce its materials. These 'model texts' were circulated to speakers at lower levels in the hierarchy, ensuring uniformity in the subjects under consideration. The way this system most frequently operated was for the leading lecturer in a field to deliver a lecture in the Moscow Polytechnical Museum, for that lecture to be printed and distributed and for it therefore to be repeated, in essence if not word-for-word, in thousands of lecture halls around the country.

It should be noted that this system deprived lecturers of spontaneity and flexibility, the supposed strengths of lectures over other forms of propaganda. One speaker, commenting on the similarity of lectures

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<sup>44</sup> 'Znanie' Presidium Meeting, 2nd July 1949: GARF f.9547/op.1/d.147/l.19-20

delivered on the subject of atomic power, noted: 'This propaganda carries a general character. And when these general phrases dry up then, naturally, the whole direction dries up.'<sup>45</sup> The system of 'dogmatically' reading such texts was increasingly condemned as a phenomenon that had evolved due to the 'cult of personality', but nonetheless most lecturers were understandably unwilling to show too much originality and independence in their lectures. There was also the obvious drawback that this process of producing 'model texts', distributing them and then supposedly reviewing every text was deeply time-consuming, and the society's leadership often worried about the topicality of its work. One speaker noted, quite rightly, that 'Scientific knowledge is not some unchanging store, which a person can grasp and carry around with them their whole life, like a travelling bag. It is necessary to permanently renew it, and to widely disseminate information about new achievements in science and technology which can be applied to work.'<sup>46</sup> However the whole methodology of the society worked against such high hopes.

The membership of the society evolved markedly during the 1950s. The leadership of 'Znanie' consistently liked to boast that the society united the best elements within the Soviet intelligentsia, listing them by speciality and educational level. Therefore, at the start of 1953, it reported that it included 110 Academicians and 117 Correspondents of the USSR Academy of Sciences, 196 Academicians and 172 Correspondents of republican academies, 1,329 professors, 2,531 *dotsenty*, 3,767 doctors, 14,805 candidates of science and another 155,817 members who lacked academic titles. It also included 123,526 'passive members', the vast majority of whom probably lacked higher education. The definition of the society as a 'mass organisation of the Soviet intelligentsia' was therefore already questionable and was to remain so during its entire lifespan, especially as it was under continual pressure to expand its membership. The breakdown of the membership by discipline in 1953 indicated that the society contained 5,388 physicists, 5,348 mathematicians, 686 astronomers, 1,396 geologists, 5,122 geographers, 4,656 chemists, 1,781 'energists', 4,590 technologists, 1,401 metallurgists, 5,258 physiologists and biologists, 18,305 medical workers and 10,290 schoolteachers.<sup>47</sup> The society's branches within the RSFSR tended to have a more highly-educated membership, and a greater proportion of 'active' members to 'passive' members than those across the USSR as a whole. It is also notable that at this time medical workers and schoolteachers

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<sup>45</sup> 'Znanie' Presidium Meeting, 17th June 1956: GARF f.9547/op.1/d.1069/l.24

<sup>46</sup> 'Znanie' Central Committee Plenum, 15-16th October 1962: GARF f.9547/op.1/d.1262/l.20

<sup>47</sup> Information on 'Znanie' Membership, as of 1st January 1953: GARF f.9547/op.1/d.778a/l.87-90

were only a minority amongst scientific specialists, a situation that was gradually to be reversed as the society expanded into rural areas during the 1950s. The society's pamphlets were still overwhelmingly produced by representatives of the higher levels of academia at this time: 80% of the society's authors in 1952 were doctors, candidates of science or Academicians.<sup>48</sup> The structure of the society had changed significantly by 1956 and of a membership of 324,000 it now included 31,859 'agricultural specialists', 45,856 Party workers, 35,744 workers in *sovet* institutions, 91,118 schoolteachers and 22,812 medical workers. This structure indicated a shift from a predominantly urban organisation made up of those engaged in scientific research, education and industry towards a nation-wide organisation which relied on the 'rural intelligentsia' of primary-school teachers, doctors, agronomists, *kolkhoz* chairmen and Party activists. This tendency became yet more marked when the Ministry of Culture's lecture organisation, which had previously taken responsibility for the bulk of lecturing in rural areas, was handed over to the society during 1957. The membership of the society was 72.5% male and 27.5% female in 1956, with Party members making up 63.6% of the society, Komsomol members providing another 6.8% and non-Party individuals making up the remaining 29.6%.<sup>49</sup> Therefore, claims that the society was representative of the entire Soviet intelligentsia were obviously inaccurate, but to assert that 'Znanie' was merely the Party intelligentsia in a different garb also distorts the reality of the situation.

The financial resources of the society were a constant matter of concern, and had a serious impact on its ability to effectively conduct propaganda. During 1955 the society had an income of 136.2 million roubles, of which the vast majority (96.3 million roubles) came from payment for lectures provided, with only 24.8 million roubles coming from its publishing activities and 4.8 million roubles deriving from membership fees. It should be noted that many local branches of the society were woefully incompetent when it came to squeezing subscriptions from their more reluctant members. The society spent 68.5 million roubles on lectures (of which 57.6 million roubles went directly to lecturers) and 31.8 million roubles on 'administration'.<sup>50</sup> There is no doubt that running such a large, 'voluntary' organisation inevitably entailed a large bureaucracy, which became progressively more bloated. For instance, by 1956, the Moscow Oblast' society employed 45 people on a full-time basis and, despite continual attempts to make the society more

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<sup>48</sup> A. Oparin to N.A. Mikahilov, 25th February 1953: RGANI f.5/op.16/d.599/l.20-1

<sup>49</sup> Silant'ev to A.F. Iudenk, 27th July 1956: GARF f.9547/op.1/d.1074/l.194

<sup>50</sup> Silant'ev to A.F. Iudenk, 27th July 1956: GARF f.9547/op.1/d.1074/l.193

reliant on volunteers, by 1960 this had expanded to 65 paid employees.<sup>51</sup> The society, although nominally independent of both Party and state, also received a small state subsidy from its foundation in 1947, supposedly only for the purposes of maintaining the Moscow Polytechnic Museum and the Leningrad House of Technology.<sup>52</sup> Later, this funding was expanded to provide support for lecturing in the Far North and Far East, but neither the central *apparat*, nor local organisations were supposed to receive state funding for normal expenditure.<sup>53</sup> However, by the early 1960s, this principle was obviously being breached: in every republic except Ukraine the society was being financially supported by the state, with the Russian society branch receiving 800,000 roubles a year, the Byelorussian society branch receiving 210,000 roubles and the Armenian society branch receiving 30,000 roubles.<sup>54</sup>

Despite this support, the society was an archetypal example of what Terry Martin has termed a 'soft-line institution'; despite the fact that the society was supposedly making a crucial contribution to the long-term goals of the Party-state, resources were inevitably diverted by more immediate priorities.<sup>55</sup> 'Znanie' faced nearly continuous problems in trying to support itself; it frequently sent begging letters to the Central Committee requesting more automobiles for its most far-flung branches, and it had to fight a fifteen-year bureaucratic battle even to take full possession of its promised headquarters, the Moscow Polytechnical Museum, from the Ministry of Fisheries. Lecturers continually complained that they had insufficient visual aids, such as posters, slides and films to support their work, and that they were often forced to dip into their own pockets to provide for them. The society was put under increased pressure from the mid-1950s to cut back expenses on its *apparat*, and it encouraged its members first to review texts without payment and then to actually deliver their lectures for free. The society demanded as early as 1949 that reviewing be provided as a 'social duty', due to its rapid expansion, but this appears to have gone unnoticed well into the 1950s.<sup>56</sup> However, from the late 1950s the campaign to encourage lecturers to see their work as a social duty did have some success; by 1962, only 9.5% of lectures produced financial reward for the lecturer personally, a

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<sup>51</sup> Staff Payments for Moscow Oblast', 1956: TsGAMO f.7431/op.3/d.4/l.1, Staff Payments for Moscow Oblast', 1960: f.7431/op.1/d.42/l.1

<sup>52</sup> A. Oparin to Malenkov, 17th May 1951: GARF f.9547/op.1/d.456a/l.247-8

<sup>53</sup> 'Znanie' Presidium Meeting, 24th November 1954: GARF f.9547/op.1/d.1002/l.183

<sup>54</sup> 'Znanie' Central Committee Plenum, 15-16th October 1962: GARF f.9547/op.1/d.1263/l.56; note that these figures post-date the rouble revaluation

<sup>55</sup> Terry Martin, *The Affirmative Action Empire: Nations and Nationalism in the Soviet Union, 1923-1939* (Cornell University Press: Ithaca 2001), pp.21-2

<sup>56</sup> 'Znanie' Presidium Meeting, 15th February 1949: GARF f.9547/op.1/d.145/l.93

change which was supposedly due to the ‘aspiration, which constantly grows, of the intelligentsia to selflessly bear knowledge to the people.’<sup>57</sup> Whether this should be seen as a genuine attempt to foster Khrushchëvian voluntarism amongst the intelligentsia, or merely a cynical cost-cutting measure to save the society from financial ruin, is open to debate. However, it remains clear that any hint of a ‘big deal’ between the Party and lecturers, by which the intelligentsia received financial support and prestige in return for toeing the Party line, had vanished from the work of the society by the late 1950s.<sup>58</sup> The satisfaction the intelligentsia was to receive from lecturing was now purely moral.

### ‘ZNANIE’: LIMITATIONS AND DIFFICULTIES

Contemporaries who analysed the Soviet system of oral propaganda did not necessarily come to similar conclusions as to its effectiveness. Ellen Propper Mickiewicz argued that lectures enjoyed considerable popularity with audiences, as they could ‘zero in on the specific concerns of the public, and they are relatively unstructured and decentralized.’ As such they offered a valuable alternative to radio, film and television.<sup>59</sup> However, Stephen White took a less positive view and, while acknowledging that the Soviet oral propaganda network was ‘unprecedented in its scope and intensity’, suggested that the main value of this labour-intensive system was to check the ‘forces’ available to the Party and encourage participation amongst non-Party activists.<sup>60</sup> Ideally, the oral propaganda system provided by ‘Znanie’ would have combined both these roles, cultivating a disciplined cadre of dedicated propagandists who could deliver accessible popular lectures and were responsive to public interests.

This ideal was, however, rarely met in practice and the promotion of science through the propaganda of ‘Znanie’ was a difficult task, often made more difficult by the unwillingness of scientists to become directly involved in the work of the society. It was one of the society’s ambitions, as often expressed by its leadership in 1947, to devote at least 50% of all its lectures to scientific and technological topics. This goal had to be abandoned during the years of the *Zhdanovshchina*, when political education and

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<sup>57</sup> Semënov to CC CPSU, 10th October 1962: GARF f.9547/op.1/d.1271/l.43

<sup>58</sup> On the ‘big deal’, see Vera S. Dunham, *In Stalin’s Time: Middleclass Values in Soviet Fiction* (Cambridge: 1970)

<sup>59</sup> Mickiewicz, *Media and the Russian Public*, p.125

<sup>60</sup> White, ‘The Effectiveness of Political Propaganda’, pp.325, 341

a focus on foreign affairs took precedence, but a similar target was raised in discussions during 1953 and 1954, in preparation for the society's second congress, belatedly held in April 1954.<sup>61</sup> Delivering the keynote lecture at the congress the society's deputy chairman, Ivan Laptev, argued that the fact that only 20% of lectures had been delivered on science and technology was 'abnormal'. Nonetheless, in the period under consideration, science and technology never made up more than 30% of the lectures delivered by the society.<sup>62</sup> Admittedly, this was partially due to the fact that political education was always seen as the Party leadership's most pressing concern, but it was also due to the society's problems in finding qualified lecturers and encouraging the scientific intelligentsia to participate in the work of the society. It was noted, by 1956, that the educational level of members had become inversely proportional to their involvement in the society: in Moscow, during 1955, 60% of members with a degree had given lectures, but only 47% of candidates and *dotsenty*, 36% of doctors and professors and 27% of Academicians and Correspondents.<sup>63</sup> This however remained a notable improvement over 1953, when only 1720 members of the Moscow City branch, or 24% of the membership, had delivered even one lecture.<sup>64</sup> Some societies on the 'periphery' completely lacked formal scientific sections, due to the problem of finding sufficient qualified reviewers; for instance, in June 1956 the presidium had to order the Tadzhik and Kirghiz SSRs to form physics sections, the Byelorussian, Kazakh, Turkmen, Estonian and Tadzhik SSRs to form biology sections and the Kazakh, Armenian, Tadzhik, Turkmen, Moldavian and Kirghiz SSRs to form chemistry sections.<sup>65</sup> The society was seriously understaffed in many areas of the country when it came to dealing with scientific issues; for instance, in 1954 in Novosibirsk, of the 37 *raion* sections, 15 had no qualified biologists, 12 could only boast one and a further ten had only between two and five. Five *raiony* could find no medical specialists to give lectures and eleven had only one medically-qualified lecturer. Six *raiony* had no lecturers on mathematics or physics at a time when the campaign focused on 'peaceful uses of atomic energy' was in full swing, and a further 16 had only one or two lecturers.<sup>66</sup> Similar complaints could be heard from many

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<sup>61</sup> Laptev to Pospelov, 4th July 1953: GARF f.9547/op.1/d.778a/l.103-4

<sup>62</sup> Laptev, Speech of 2nd April 1954: GARF f.9547/op.1/d.989/l.16

<sup>63</sup> Laptev and Sukinin to Novikov, 19th April 1956: GARF f.9547/op.1/d.1074/l.101-2, 112

<sup>64</sup> Information on Lecture Work, 9th December 1953: TsMAM f.709/op.1/d.13/l.4

<sup>65</sup> 'Znanie' Presidium Meeting, 17th June 1956: GARF f.9547/op.1/d.1067/l.154

<sup>66</sup> 'Znanie' Presidium Meeting, 17th August 1954: GARF f.9547/op.1/d.1001/l.44-6

other 'peripheral' regions, those where lecture propaganda was often vital, due to the absence of more sophisticated media.

The society regularly discussed its own inability to attract scientific cadres to its work, and especially focused on the issue at a presidium meeting of November 1955. One speaker condemned the bureaucratic inertia of the society for alienating the intelligentsia, noting 'It has been rightly said here that there is a tendency for less qualified scientists to replace more qualified ones. It seems to me a significant role is played here by the incorrect, and possibly defective, practice of lectures being organised by apparatchiks....' Another speaker commented: 'When the Society was created it was to be a holiday [*prazdnik*] for scholars, but now for many members of the Society it is a chore [*budni*].' The same meeting heard criticism of the fact that of 3000 research institutes in the USSR only 38 had become collective members of the society.<sup>67</sup> However, no concrete measures were suggested for attracting scientists into the organisation and the problem continued to arise in later years. The head of the society's natural science section reported the following June that he continued to have problems negotiating for 'great scientists' to work for the society: 'I personally appealed to [nuclear physicists] Tamm and Kapitsa and some sort of indirect reason always arose hindering the delivery of manuscripts which we really needed.'<sup>68</sup> There is no need to see in this avoidance of propaganda work hostility to the entire Soviet system, or to the Party, although such hostility was characteristic of some of the Soviet scientific intelligentsia. Given the fact that such lectures required a vast amount of time to write, that texts would have to be rewritten to satisfy poorly educated ideological watch-dogs and that the financial returns from such work were laughably small, lecturing for 'Znanie' can hardly have been appealing to scientists who were supposed to be engaging in full-time research work as well as educating the masses.

The problems that arose when the society attempted to negotiate with scientific specialists can be shown by a case that arose in 1962. Professor I.A. Kovalenko, Correspondent of the Lenin Agricultural Academy and Director of the Experimental Veterinary Institute, lectured for 'Znanie' in 1959-60 and found that the lectures were due to be published, without his permission, by the society in 1961. He then received a request to rewrite the pamphlet in a more populist style and refused, arguing this would lead to its sense

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<sup>67</sup> 'Znanie' Presidium Meeting, 1st November 1955: GARF f.9547/op.1/d.1042/l.231-6

<sup>68</sup> 'Znanie' Presidium Meeting, 17th June 1956: GARF f.9547/op.1/d.1069/l.22

being 'distorted'. He also refused to allow the publication of a version rewritten by V.I. Silin, editor of the specialist journal *Zhivotnovodstvo*. Believing the issue settled, he was then surprised by the publication of V.N. Pogrebkii's pamphlet *Novie Razvitii v Veterinarii* which 'warmly thanked me for my assistance' although Kovalenko noted 'I am not acquainted with the author and have never even heard his name.' Kovalenko complained that his original text, plagiarised by the over-worked staff of the 'Znanie' publishing house, now included numerous errors, asserting microbes could be seen with the naked eye and confusing bacilli and bacteria. Kovalenko eventually convinced the Head Veterinarian of the Ministry of Agriculture to complain to the society on his behalf and discovered that 'V.N. Pogrebkii' was the pseudonym of T.S. Leonova, a senior reviewer for the society; she was eventually reprimanded, along with the senior editor for scientific publications.<sup>69</sup> Such cases were obviously rare, but demonstrated the inherent tensions in the system. The full-time propagandists at 'Znanie' were eager to produce accessible, populist pamphlets for a wide audience and had a strict publication deadline to meet, especially when propaganda had a direct connection to the economic and political goals set by the Party. Scientific specialists, even those who were willing to 'do their bit', only had so much time to commit to propaganda work and were unwilling to compromise over the quality of their work. Although cases of such outright plagiarism were rare, cases of 'scientifically-illiterate' editors and reviewers mangling works, and alienating those who had volunteered their services, abounded.

Attempts to attract more scientists to lecture were made in the late 1950s by increasing the number of primary organisations within scientific institutes. The branch at the Moscow Aviation Institute for instance, was formed in 1956 and by 1960 its 128 members were delivering 100-200 lectures a month, of which over half were delivered outside the institute itself. The branch provided patronage [*shestvo*] to five local schools and also spoke in military sections in the *oblast'* on atomic power and the development of rocket technology, often attracting 150-200 listeners. Chemists and physicists from MGU were recruited to visit schools and speak on the use of isotopes in industry, and often travelled up to 60 kilometres to deliver

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<sup>69</sup> I.A. Kovalenko to Semënov, 26th December 1962: GARF f.9547/op.1/d.1310/l.37-9, Boiko to Semënov, 9th May 1963: GARF f.9547/op.1/d.1310/l.36, Zonov to Liumbomirov, 6th June 1963: GARF f.9547/op.1/d.1310/l.32-5, Liumbomirov to CC Agricultural Section, 19th June 1963: GARF f.9547/op.1/ d.1310/l.31

lectures in the *oblast*’, returning home, exhausted, at midnight after a four-hour journey.<sup>70</sup> However, such local initiatives were reliant on a large local group of scientists, and could only practically operate in areas such as Moscow, Leningrad and a few other major cities. Further from the centre of academic life desperate measures were occasionally taken, by the expedient of turning a scientific conference into an excuse for a blitz of scientific propaganda. During October-November 1964 Tashkent played host to the Eighth All-Union Conference of Radiologists, as a result of which five Academicians, thirty doctors and professors and fifteen candidates of science gave a total of seventy-five public lectures in the town, recorded ten lectures for local television and eleven more for local radio, and wrote seven articles for the local newspapers. This no doubt improved the statistical record of the local branch (it had only been visited by one Academician during 1963) and the practice was recommended by the central *apparat*. However, how much use it was to the people of Tashkent, who were presumably now the world’s most knowledgeable population on all matters radiological, must be open to question.<sup>71</sup>

Inevitably, the difficulties that ‘Znanie’ faced in recruiting members of the scientific intelligentsia for voluntary lecturing work led to further problems. Those members of the intelligentsia who were willing to participate quickly became over-worked and over-stretched; a 1963 report noted that one Moscow lecturer was delivering 200 lectures a year, on a wide variety of subjects: ‘Comrade Ulanova asked him “How do you live with so many lectures in your head?” He hadn’t got to grips with atomic energy, but he knew the jargon well.’<sup>72</sup> The practice of employing lecturers to cover a broad variety of different subjects was widely criticised as ‘universalism’. A report from Gor’kii in February 1956 noted that A.A. Seriakov was lecturing on meteors and comets, the origins of the earth and planets, hydroelectric schemes, jet engines, atomic energy and solar and lunar eclipses. A fellow lecturer, N.P. Bakhtin, was giving lectures on atomic energy, the rocketry pioneer Tsiolkovskii, and storm defence, while also reading anti-religious lectures on cosmology.<sup>73</sup> Such lecturers provide evidence that a small core of enthusiastic volunteers did exist, although whether they continued to exist in such numbers once payment for lectures was abolished is

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<sup>70</sup> Meeting of Chairs from Scientific and Teaching Institutes, 14th November 1960: TsMAM f.709/op.1/d.195/l.5-12, 30

<sup>71</sup> ‘Znanie’ Presidium Meeting, 8th December 1954: GARF f.9547/op.1/d.1364/l.135

<sup>72</sup> ‘Znanie’ Presidium Meeting, 16th October 1963: GARF f.9547/op.1/d.1307/l.54

<sup>73</sup> Report on Technological Propaganda in Gor’kii, 30th January-16th February 1956: GARF f.A-561/op.1/d.21/l.65

doubtful. However, the work of such Renaissance men threatened to undermine a fundamental principle of the society's work: that 'Znanie' existed as a conduit of specialist knowledge to the broader population, not simply as an amateur debating society. Especially in rural areas the society was forced to work with whoever was willing to participate, a practice condemned from the centre. For example, in 1953, the Kirghiz society was criticised for employing as a propagandist an ex-procurator, Karnomaliev, who had been fired for drunkenness and bribery, for employing lecturers who had worked in German occupied areas during the war, and for allowing Professor Braun, 'excluded from the Party for conversations with enemies of the people' to work as the chair of its scientific atheism bureau.<sup>74</sup> However, given how many members of the educated intelligentsia fell foul of the authorities for one reason or another, filling the scientific-methodological councils with 'reliable' people must have been an extremely difficult task, especially in those areas which had been annexed to the USSR during the Great Patriotic War.

The quality of lectures seems to have varied enormously, both in the standard of presentation and the accuracy and relevance of the scientific material they contained. One society member reported on a lecture on anti-religious propaganda at a *kolkhoz* in Estonia during 1956: 'This lecture was read so dryly that out of 116 members of the audience only two remained in the hall at the end of the talk - the [*kolkhoz*] chairman and the deputy.'<sup>75</sup> It is therefore perhaps not surprising that 'Znanie' lectures tended to have most success in places where they had captive audiences; *kolkhozniki*, pensioners and military personnel often seem to have been the most responsive and enthusiastic listeners. Pensioners, and those of pensionable age, not only made up a significant core of the society's audience but of the lecturing cadre as well. The fact that 'Znanie' might be failing in its attempts to inculcate the Party's system of values in the rising generation was commented on by critics within the society, one of whom noted that the average age of both audiences and lecturers was around sixty: 'Pensioners often come to public lectures in the Central Lecture Hall.... It is necessary that our lectures attract more young people.... We must raise more relevant questions in chemistry, then a great quantity of youth will come to our lectures.'<sup>76</sup> Lectures were intended to provide an alternative to frivolous dances or hanging around on street corners, as one lecturer indicated:

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<sup>74</sup> 'Znanie' Presidium Meeting, 10th July 1953: GARF f.9547/op.1/d.789/l.30, 44

<sup>75</sup> Laptev and Sukinin to Novikov, 19th April 1956: GARF f.9547/op.1/d.1074/l.109

<sup>76</sup> Conference-Seminar on Chemical Propaganda, 12-14th May 1962: GARF f.9547/op.1/d.1278/l.117

We want to divert youth away from hooliganism. If in the workshop there's a lecturer, with exhibits, visual aids, and he reads a lecture you want to hear, with photographs, I'm confident youths will shut their mouths and listen. Having heard a lecture where they can see how paraffin burns, I'm confident they'll come back for the next lecture.<sup>77</sup>

Science may have been popular during the 1950s and 1960s, but whether watching paraffin burn was an attractive alternative to 'hooliganism' remains doubtful. A more serious attempt to communicate with 'youth' was made from the early 1960s by recruiting and training younger cadres from research institutes and higher schools, but such programmes also provoked resentment amongst the older lecturers who made up a majority within the society and felt under-valued.

Thanks to the society's policy of accepting virtually all lecturers who were willing to work for them, there were inevitably cases where lecturers read texts with poor scientific content. This problem was compounded by the fact that many lectures were not properly edited: for instance, in the Tadzhik SSR in 1953 over 30% of texts were never checked prior to reading.<sup>78</sup> One lecturer on cosmology and cosmogony, based in Gor'kii, 'could not clearly comprehend the reasons for the change of day to night, or the change of the seasons, and she had a very confused idea about the essentials of Shmidt's theory of the structure of the universe.'<sup>79</sup> A report from Kursk criticised lecturers who were unable to provide an answer to the question why, if Darwinism was valid, chimps no longer gave birth to human beings, a problem admittedly compounded by the Lysenkoist doctrines of the time.<sup>80</sup> One lecturer sent from Moscow to Chernogorsk tried to make his lecture on Darwinism more explicable by encouraging his audience to walk around on all fours and then on their feet, to work out which was easier; despite the pleas of the lecturer for his audience to remain until he reached his point they promptly walked out.<sup>81</sup> A lecturer in Frunze was criticised for describing the use of ultra-sound waves to protect spaceships from meteors, for discussing earthquakes as a reliable source of electrical energy, and for giving an entire lecture on the fledgling science of *kinerbetika*

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<sup>77</sup> Meeting of Chairs from Scientific and Teaching Institutes, 14th November 1960: TsMAM f.709/op.1/d.195/l.38

<sup>78</sup> 'Znanie' Presidium Meeting, 10th February 1953: GARF f.9547/op.1/d.785/l.55

<sup>79</sup> 'Znanie' Presidium Meeting, 28th June 1955: GARF f.9547/op.1/d.1041/l.246

<sup>80</sup> Scientific-Atheism Seminar, 15-16th April 1956: GARF f.A-561/op.1/d.281/l.56

<sup>81</sup> All-Russian Conference on Scientific-Atheism, 10th January 1956: GARF f.A-561/op.1/d.65/l.113

[sic].<sup>82</sup> This low level of scientific literacy could even have had a detrimental effect on the health of the audience, as one report noted:

‘There is at work in the Djalal-Abad Oblast’ section of the Kirghiz society one Urasov, who read low quality lectures on general politics, economics, science, literature, art and even medicine (gynaecology). When the question was set to him “why do you, not being a doctor, give lectures on gynaecology” he answered: “Because my wife is a doctor.”<sup>83</sup>

Attempts to remedy the lack of knowledge amongst lecturers were made from 1959, within the framework of the People’s Universities, many of which ‘Znanie’ itself operated. Here lecturers could attend courses of seminars where specialists (in theory) provided up-to-date information from their area of expertise, therefore enabling a reliable flow of scientific information to those on the ‘front-lines’. Whether this training had any effect on the quality of lectures delivered is however impossible to evaluate from the existing sources in the ‘Znanie’ archives.

It should be noted that the problem of securing high-quality scientific information was not limited to lectures in areas distant from Moscow, but cropped up in printed propaganda that had supposedly undergone a rigorous editorial process. A series of posters on ‘The Construction and Development of the Universe’ produced by ‘Znanie’ in 1954 had to be reworked, after two years of preparation, when it was noticed that the Earth was spinning the wrong way round on one of the diagrams.<sup>84</sup> A book by Candidate of Chemistry A.S. Barkan, *Khimiia v Borb’e s Sueveriiami*, used by propagandists in Byelorussia hoping to educate *kolkhozniki*, had to be withdrawn in 1953 after the realisation it covered chemistry in an ‘illiterate’ fashion and could potentially lead to anyone following its instructions accidentally blowing themselves up.<sup>85</sup> Such incidents, which were by no means uncommon, bore witness to the lack of professionalism and scientific literacy shown at many levels in the organisation.

The problems with ensuring that books and pamphlets were properly reviewed led to consistent delays in publishing, which made a mockery of attempts to provide topical scientific material. During May

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<sup>82</sup> ‘Znanie’ Central Committee Plenum, 15-16th October 1962: GARF f.9547/op.1/d.1262/l.98

<sup>83</sup> Silant’ev to Bugaev, 22nd June 1956: GARF f.9547/op.1/d.1074/l.160

<sup>84</sup> ‘Znanie’ Presidium Meeting, 26th October 1954: GARF f.9547/op.1/d.1002/l.49-51

<sup>85</sup> ‘Znanie’ Presidium Meeting, 21st July 1953: GARF f.9547/op.1/d.789/l.156-8

1954 *Pravda* forwarded to Agitprop a number of complaints from its readers about the slow arrival of works from 'Znanie'. One reader noted that he had subscribed to receive pamphlets from the society three months earlier and had not yet received any, while another noted that the monthly *Nauka i Zhizn'* regularly arrived six weeks late.<sup>86</sup> Such problems had a knock-on effect, as many lecturers relied on such pamphlets and journals to inform them of the latest changes in the Party line, as well as the most recent scientific achievements. Continuing delays in the production of material for lecturers and other subscribers led to an investigation by the Ministry of State Control (of what remained, nominally, a voluntary, non-governmental organisation!) and the removal of the society's chief editor in April 1955.<sup>87</sup> However, this did not prevent a further attack on the society in *Sovetskaia Kul'tura* in June, where an editorial noted: 'They include in their thematic plan famous specialists, giving little thought to who of them can really manage to write a lecture in the given time.'<sup>88</sup> However, no amount of criticism or reshuffling posts could solve the systematic problems of 'Znanie' and in 1962 there were still complaints that, even in Moscow, it was virtually impossible to purchase the society's printed propaganda, and that writers who worked for the society were engaged in 'underground activity'.<sup>89</sup>

Attempts were continuously made in this period to improve the work of 'Znanie', encourage participation and ensure efficiency, but few of these changes had any visible effect. One of these steps was to abolish the formal division between 'active' members, who had the right to compose and deliver their own lecture texts and those 'passive' members who only held the right to assist at lectures or deliver lectures written by other society members. This reform, entered into the society's statutes at its second congress in April 1954, was obviously a vital measure given the vast increase in the society's membership since 1947 and the need to encourage the rural intelligentsia to participate fully in the society's work. It was noted at the time that over half of the society was composed of the 'rural intelligentsia' and the demand had arisen that all of these individuals work on their own texts.<sup>90</sup> Reviewing the new statutes, Molotov also suggested that 'sufficiently qualified' lecturers might be allowed to present only a thesis of their lecture for editing, rather than a full paper. This system seems to have operated informally in any case, but was never

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<sup>86</sup> I. Kiriushkin to Kruzshkov, 14th May 1954: RGANI f.5/op.16/d.654/l.34, 38

<sup>87</sup> P. Kovanov and A. Kosul'nikov to CC CPSU, 19th April 1955: RGANI f.5/op.16/d.702/l.29

<sup>88</sup> *Sovetskaia Kul'tura* 21st June 1955, p.2

<sup>89</sup> 'Znanie' Presidium Meeting, 15th March 1962: GARF f.9547/op.1/d.1265/l.52

<sup>90</sup> Laptev to V.P. Moskovskii, 16th February 1954: GARF f.9547/op.1/d.987a/l.25-6

formally adopted.<sup>91</sup> The second congress of 'Znanie' also saw its official description altered from that of a 'political-enlightenment' society into that of a 'scholarly-enlightenment' society, although this change was purely cosmetic.<sup>92</sup> Any hopes that such reforms might make 'Znanie' a more dynamic, participatory society were illusionary and in 1959 the leadership of the society, which was by then headed by the old-guard Stalinist Mark Mitin, came under heavy criticism. Agitprop reported to the Central Committee that 'business-like criticism of deficient work is often subordinated to blustering pride [*paradnoi shumikhoi*] and declarative speeches.' Speakers at a January 1959 'Znanie' plenum echoed these criticisms and condemned the leadership, and Mitin in particular, for insufficient attention to the society's work.<sup>93</sup> Such criticism provoked a party decree, issued on 29th August 1959, which condemned the society for failing to engage in practical education, for utilising bureaucratic methods and neglecting science and ideology. It stated:

Many famous scholars, socio-political figures, writers, composers and artists have abandoned work for the Society. Often certain lecturers in the Society show themselves to be unprincipled hacks, money-grabbers and inappropriate people, compromising the Society itself and lecture work generally.<sup>94</sup>

Mitin was not re-elected at the third congress of the society in January 1960, but was replaced by Nikolai Semënov, the 1956 Nobel Prize winner for chemistry. Semënov was a highly-regarded if generally apolitical scientist who possessed the respected academic credentials that Mitin had so obviously lacked. His appointment once again re-established the principle that the society's chairman should be a leading natural scientist, a principle that was to endure until the collapse of the USSR. The society also introduced a new paragraph into its statutes at the congress, granting to all members of the society the right to criticise its leading organs and any of the society's workers.<sup>95</sup> This theoretically meant the application of the

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<sup>91</sup> Meeting of 'Znanie' Section Leaders, 25th April 1955: GARF f.9547/op.1/d.1050/l.36

<sup>92</sup> 'Znanie' Society Statutes: GARF f.9547/op.1/d.988/l.67

<sup>93</sup> Information on the Work of 'Znanie', 15th January 1959: RGANI f.5/op.33/d.100/l.1-2; Andreev 'Vsesoiuznoe Obshchestvo', p.675, notes that, for 'unknown reasons', Mitin's role in running 'Znanie' at the time of its most significant expansion, was ignored in later official histories of the society.

<sup>94</sup> 'O Merakh po Uluchsheniiu Raboty Vsesoiuznogo Obshchestva po Rasprostraneniu Politicheskikh i Nauchnikh Znanie' in *Voprosy Ideologicheskoi Raboty* (Gospolizdat: Moscow 1961) p.137

<sup>95</sup> Speech of Mesiatsev to Third 'Znanie' Congress, 28th January 1960: GARF f.9547/op.1/d.1173/l.97

Khrushchëvian notion of grass-roots criticism to the work of the society, but appears to have made little difference and left the society no more able to engage in serious work than before. The simple truth appears to have been that, like so many similar organisations in Soviet society, 'Znanie' was too large and unwieldy to work effectively and had been set tasks that far outstripped its material and human resources.

## CENTRE AND PERIPHERIES

The propagation of scientific knowledge, as noted earlier, involved the interaction of two very different worlds, and the task of ensuring its quality and accessibility provoked tensions between the centralised bureaucracies responsible for scientific propaganda and those propagandists who were embedded in the other world; school-teachers, provincial doctors and agronomists. While many of these rural, or local, *intelligenty* may have regarded lecture propaganda as a chore, they nonetheless resented interference in their work, and virtually all of them were eager to see their names in print. The journal *Estestvoznaniye v Shkole* for instance, received over 600 unsolicited articles from the 'peripheries' in a year (of which only 168 were published), and organisations such as 'Znanie' and the All-Union Astronomical Society were also often inundated with manuscripts sent in by amateur writers and propagandists.<sup>96</sup> However, the kind of responses these works received from the central bureaucracies were unlikely to spur authors on to greater efforts. One manuscript, on the famous Soviet plant-breeder Michurin, had been reviewed by the central biology and agriculture scientific-methodological council of 'Znanie': 'Besides principled remarks there were justified protests against remarks in the review such as "nonsense", "primitive", "what vulgarisation!" and "well well".'<sup>97</sup> One speaker at the second congress of 'Znanie', in April 1954, in a warmly-received speech, noted that only one pamphlet from his area, the Tartar ASSR, had been printed since 1947 and that criticism returned from the centre was often nothing but 'a collection of contradictory and incomprehensible phrases.' He stated:

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<sup>96</sup> Session of the Physics Educational-Methodological Council of the RSFSR Ministry of Enlightenment, 23rd January 1958: GARF f.A-2306/op.75/d.1536/l.2

<sup>97</sup> Meeting of 'Znanie' Section Leaders, 18th May 1954: GARF f.9547/op.1/d.1011/l.25

Academician Laptev, in his report, said that very few lectures by peripheral lecturers were published. Why is this? Because the work done [by the central publishing house] with peripheral lecturers is very poor. The impression has been created that members of the Society who live outside Moscow will have great difficulty in getting their work published.<sup>98</sup>

This impression was undoubtedly justified, as the vast majority of pamphlets that were published were written by specialists from scientific institutes in either Moscow or Leningrad. However, the problem was by no means limited only to 'Znanie', but was characteristic of most organisations that sought to encourage an interest in science amongst the broader population. Paul R. Josephson has noted, although without providing examples, the popular enthusiasm demonstrated by the 'hundreds of letters that leading scientists received from well-intentioned citizens who proposed antigravity devices, perpetual motion machines, and other pseudoscientific projects, all in the service of communism.' He claims that while 'far-fetched suggestions were ignored, each letter writer received a polite response.'<sup>99</sup> However, the All-Union Astronomical Society employed a secretary who seems to have taken a perverse delight in making responses to unsolicited manuscripts as insulting as possible. He told one author:

....you know astronomy and physics quite poorly, and in your conspectus there are errors on every page.... everywhere, you come to absurd conclusions. The cause of this is that you take on yourself a task beyond your capabilities, for which you do not have the necessary sum of knowledge.... I ask you why your letter of 1st January 1955 was written to us on notepaper from No.4 School, Tatarsk. What do you do in this school? If you are a teacher, what subject and grade do you teach?<sup>100</sup>

He told another author his attempts 'to introduce something new into cosmology cannot be successful because you do not possess the necessary sum of knowledge, nor theoretical grounding, nor experimental facts. This is a frivolous approach to science. And science cannot tolerate frivolous approaches.' A third writer was told: 'You have an usually high opinion of yourself and consider yourself a

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<sup>98</sup> Speech of Studentsov to Second 'Znanie' Congress, 5th April 1954: GARF f.9547/op.1/d.989/l.320-2

<sup>99</sup> Paul R. Josephson, 'Atomic-Powered Communism: Nuclear Power in the Postwar USSR' in *Slavic Review* Vol.55, No.2 (Summer 1996), pp.297-324, here at p.321

<sup>100</sup> V.A. Bronshten to Poliakov, 5th April 1954: ARAN f.1510/op.1/d.316/l.49

genius. In actual fact, you have a very frivolous approach to a series of serious scientific questions.’<sup>101</sup> It must be conceded that many of these manuscripts were indeed woefully inaccurate and unscientific (some of them will be described in Chapter Five) but nonetheless the tone of the reviews bears witness to the frustration engendered on both sides when professional scientists and enthusiastic, yet poorly educated, members of the Soviet public came into contact in the process of producing propaganda.

## CONCLUSION

This chapter has hopefully demonstrated the vast scope that existed for Soviet scientific propaganda in the 1950s and 1960s, and that public interest in the subject exceeded even the resources that the propaganda state could call upon. There is no doubt that many Soviet citizens had a voracious hunger for comprehensible information on science and technology, and across all media demand for popular, accessible and accurate scientific materials outstripped supply. Films and radio broadcasts on science, and biographies of leading scientists, provoked a genuinely enthusiastic reaction from a broad section of the population. Indeed, the difficulty was often in restraining this enthusiasm and preventing flights of fancy leading into ideological error, over-simplification or pseudo-science. Those who consumed popular science propaganda, across all media, did so for a variety of reasons. Doubtless many had purely pragmatic goals, seeking to improve their own technical skills and knowledge, and thus increase their chances of promotion and material advancement. However, the majority seem to have been more interested in the romance of science, its utopian, visionary aspects, and what propagandists and ideologists termed ‘the scientific worldview’. However, as we shall see later, the Soviet public may have understood this ‘worldview’ in a very different fashion to the Party ideologues.

This problem, inevitable given the multiple interpretations that can be imposed on even the crudest propaganda, was magnified by the peculiarities of the Soviet propaganda establishment in the 1950s and 1960s, which remained slow, disorganised and under-funded. The average *kolkhoznik* continued to rely on roving lecturers, newspapers and the radio to satisfy his curiosity regarding Sputnik or atomic power, rarely

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<sup>101</sup> V.A. Bronshten to Perevozchikov, 25th March 1954: ARAN f.1510/op.1/d.316/l.50, V.A. Bronshten to Sidorov, 25th March 1954: ARAN f.1510/op.1/d.316/l.51

having the chance to watch popular science films, read science fiction novels or browse popular science journals. The average urban, industrial worker, although better provided for, would still have a hard time subscribing to the most popular journals. The majority of the population had not received a solid scientific education and had learnt what little they had by rote. They had little introduction to 'hands-on' scientific work or the scientific method due to shortages of time and resources in the classroom. This meant that scientific propaganda was often exaggerated, distorted or misinterpreted by those who heard it. It is also true that many scientific propaganda organisations lacked central co-ordination, leaving the scientific intelligentsia who they employed to show a degree of initiative in their work that would not have been approved of by the central authorities. The unwillingness of many of the intelligentsia to participate in the process of manufacturing propaganda compounded this problem, by ensuring that willing volunteers were over-worked and forced to engage with topics they knew little about. The provincial intelligentsia, on whom 'Znanie' and similar organisations increasingly relied, were encouraged to sacrifice their own earnings and free time to propaganda work, but often found they met with nothing but scorn from those at the heart of the bureaucratic labyrinth.

The production and reception of scientific propaganda was therefore a complex issue, where the dictates of Party policy had to be integrated with the most modern scientific research and then mediated by various levels of an intricate propaganda hierarchy before, finally, being re-interpreted by an audience who had little in common with those determining policy. It is therefore unsurprising that scientific propaganda, while occasionally producing 'true believers' such as the one cited in the introduction to this chapter, also threw up very divergent interpretations of propaganda. This is a theme that will be revisited regularly in later chapters of this thesis.

## CHAPTER TWO: SCIENCE AND SCIENTISTS

### IN SOVIET PROPAGANDA AND POPULAR CULTURE

One of the central tasks of Soviet scientific propaganda since the early 1930s had been to trumpet the achievements of native [*otchestvennyi*] science and technology. Science propaganda was also to provide suitable moral and intellectual role-models for Soviet citizens, especially youngsters, to emulate. During the Great Patriotic War, a time when technology was playing an unprecedented role in defending the Motherland and Great Russian patriotism was resurgent, science and scientists came to be presented in an explicitly nationalist context as never before. The President of the Academy of Sciences, Vladimir Komarov, set the tone in the foreword for a 1945 book on the works of Lomonosov, Lobachevskii and Mendeleev, which proclaimed its goal of establishing ‘the historical, and in particular the national roots, of the universally-important discoveries’ made by the three Russians. Komarov concluded: ‘The history of Russian science, through its inventions and discoveries, proves the genius of this great nation, which has a notable tradition of patriotism and discoveries of universal significance.’<sup>1</sup> This unashamedly nationalist rhetoric, which overwhelmingly emphasised the native genius and inherent patriotism of Russian scientists, received further official support in the years after 1945, as the ideological stance of the USSR to the capitalist West hardened and the *Zhdanovshchina* gripped all spheres of Soviet creative activity.

David Brandenburger has recently argued that the Russian patriotism propagated by the Soviet state, both before and after 1945, was focused on the ‘instrumental use of russocentric appeals’ and that Stalin was never a genuine Great Russian nationalist. However, he has also demonstrated that, even amongst the highest levels of the Party hierarchy, this instrumental use of nationalist rhetoric was widely misunderstood, and that the resort to Great Russian nationalism may therefore have been perceived as sincere by many propagandists and ideologues.<sup>2</sup> Certainly, the propaganda establishment swiftly reoriented itself to ‘patriotic’ attacks on Western science, even before the Lysenkoist August Session of 1948 granted this interpretation the official stamp of approval. During July 1948 the Presidium of ‘Znanie’ met and

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<sup>1</sup> B.G. Kuznetsov, *Lomonosov, Lobachevskii, Mendeleev* (Akademiia Nauk: Moscow 1945), pp.6, 8

<sup>2</sup> David Brandenberger, *National Bolshevism*, esp. pp.4, 108, 111 and ‘Stalin, the Leningrad Affair, and the Limits of Postwar Russocentrism’ in *Russian Review* Vol.63, No.2 (April 2004), pp.241-55

reviewed the society's popular science publications, calling for them to focus attention on 'materialist explanations of nature' and 'aggressive attacks' against 'servility' towards the West.<sup>3</sup> Two weeks later the society's popular science journal, *Nauka i Zhizn*, was criticised for failing to 'expose dissolute bourgeois culture.'<sup>4</sup> During February 1949 'Znanie' organised an exhibition in the Polytechnical Museum in Moscow, intended to accomplish the 'restoration of the historical rights of pre-revolutionary Russian scientists, technologists and inventors in the development of science and technology.'<sup>5</sup> The organisation of this exhibition coincided with a special session of the Academy of Sciences, held in early January 1949, which was devoted to the history of Russian and Soviet science and provided further ideological support for exaggerated statements of 'patriotism'.<sup>6</sup>

This propaganda offensive, which was designed to present Russia as the home of the most significant scientific discoveries, and constantly prey to foreign deception and intrigue, was not limited to lectures, books and exhibitions. The notorious 'KR Affair', in which two Soviet cancer researchers were called to account in a 'court of honour' for supposedly leaking secrets to their American colleagues, was quickly adapted into both a Stalin Award-winning play and a film, which was released in December 1949 and dubbed for release across the socialist camp.<sup>7</sup> Between 1947 and 1950 Soviet filmgoers were also treated to hagiographies of such famous scientific figures as Pirogov, Michurin, Pavlov, Popov and Zhukovskii, some of which were directed by established masters of Soviet cinema, such as Dovchenko and Pudovkin.<sup>8</sup> Attempts were also made to counter the influence of the Nobel prizes, which were now deemed to be the plaything of reactionary foreign imperialism, by establishing, in May 1949, the Gor'kii and Mendeleev prizes, the latter of which was awarded for scientific achievement.<sup>9</sup> By the late 1940s, these 'patriotic' attempts to denigrate foreign scientific achievements and award priority to Russian scientists provoked widespread scorn, both in the Western press and amongst the intelligentsia of Eastern Europe,

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<sup>3</sup> 'Znanie' Presidium Meeting of 13th July 1948: GARF f.9547/op.1/d.45/l.47

<sup>4</sup> 'Znanie' Presidium Meeting of 27th July 1948: GARF f.9547/op.1/d.45/l.140

<sup>5</sup> 'Znanie' Presidium Meeting of 14th December 1948: GARF f.9547/op.1/d.46/l.303

<sup>6</sup> See Alexander Vucinich, *Empire of Knowledge: The Academy of Sciences of the USSR (1917-1970)* (University of California Press: 1984), pp.230-4 and *Vestnik Akademii Nauk SSSR*, February 1949 (No.2)

<sup>7</sup> Kremmentsov, *The Cure*, pp.134-157

<sup>8</sup> Brandenberger, *National Bolshevism*, p.348

<sup>9</sup> A.M. Blokh, *Sovetskii Soiuz v Inter'ere Nobelevskikh Premii* (Gumanistika: St. Petersburg 2001), p.585

who joked that the discovery of trigonometry was now being attributed to the Russian 'Pietia Goras' and that the first man had now been proven to be 'Adamov'.<sup>10</sup>

This chapter will examine how the explicit Great Russian nationalism of the *Zhdanovshchina* shaped the portrayal of Russian, Soviet and foreign scientists and their work in popular science propaganda in the early 1950s. It will consider what personal characteristics, qualities and habits were considered to be typical of the scientific intelligentsia, at home and abroad, and how they were shown to relate to colleagues, foreigners, the state and the *narod*. Having done this, it will move on to demonstrate how the image of the scientist, and the world in which he operated, evolved as Khrushchëv conducted his assault on the 'cult of personality'. This campaign called into question not just Stalin, but previously approved norms and values, and it was therefore inevitable that the officially sanctioned image of science and the scientist would be transformed. Old heroes were recast as 'dogmatists', while younger scientists and emerging disciplines were lauded in the media. This chapter will analyse these changes while identifying those areas where continuities with the values of the Stalinist era endured.

### **'SERVANTS OF THE MOTHERLAND' AND 'ROBOTS OF SCIENCE'**

Following the ideological dictates of the *Zhdanovshchina*, works of popular science produced after 1948 made no attempt to convey any sense of a universal, contemporary 'world science'. Instead they dramatically contrasted degenerate Western bourgeois science with the selfless, progressive traditions of Russian science. Russia was now considered to be the sole inheritor of the rationalist Enlightenment project, while bourgeois science had become nothing more than a front for obscurantism, superstition and racism. The most important characteristic of Russian scientists, as was always reaffirmed in the propaganda of this era, was their adherence to the Motherland, regardless of whether this was Soviet Russia or its tsarist predecessor. Even military research for the tsarist government on the eve of the February Revolution came to be justified as the defence of the Russian state. A typical example of the dramatisation of this patriotic fervour is provided by a radio biography of the rocketry pioneer Konstantin Tsiolkovskii, first broadcast in

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<sup>10</sup> See David Cauter, *The Dancer Defects: The Struggle for Cultural Supremacy during the Cold War* (Oxford University Press: 2003), pp.36-7 and Waslaw Gajewski, 'Lysenkoism in Poland' in *The Quarterly Review of Biology*, Vol.65, No.4 (December 1990), pp.422-34, here at p.429

January 1953. The narrative begins in Kaluga, immediately after the February Revolution, where Tsiolkovskii is fuming that the Provisional Government is no more willing to fund his research than the old tsarist authorities. When a mysterious stranger arrives, offering to take him to the USA, 'an entirely free state, a heaven for scientists and inventors', Tsiolkovskii responds angrily: 'You expect me to sell my labour, my brain? Have I understood you "sir"?' When the visitor reminds him that his wife and family are starving and Russia is in ruins, the inventor replies: 'You're talking nonsense! Russia.... O, Russia is the richest country in the world. The most rich in nature, and in people.... And I believe in the future of my homeland.'<sup>11</sup> The guest is sent packing and Tsiolkovskii is, of course, vindicated by the October Revolution. This narrative is repeated virtually word-for-word in dozens of similar tales about Russian inventors and scientists produced at this time.

Even scientists who had permanently emigrated from Russia could be transformed into 'patriots' in such narratives. One radio biography claimed that the engineer Aleksandr Lodygin had only emigrated to the USA in 1884 to defend his claim to priority in the invention of the light-bulb over that of Edison, and that he had only been prevented from returning to Russia after 1917 by the Allied intervention. Thus his three-decade sojourn abroad was transformed into a patriotic feat of endurance in defence of Russian national pride.<sup>12</sup> Similarly, the engineer E.O. Paton, whose memoirs were published in 1956, was portrayed as a staunch defender of Russian values abroad. Reviewing the book, Mikhail Arlazorov noted that Paton had grown up in Nice as the son of a consul, but his family had spoken only Russian at home, 'like worthy citizens of their homeland', and they had not mixed with the 'lay-about and slackers' who had turned the city into a 'genuinely cosmopolitan town'.<sup>13</sup> Therefore, at a time when Soviet scientists were beginning to travel abroad and once again mingle with foreign scientists, propagandists made it clear that the finest representatives of the Russian intelligentsia had always remained resistant to the lure of Western culture and, more significantly, the dollar.

This focus on the adherence of Russian scientists to their *narod*, and the crude materialist Marxism which reigned in Soviet propaganda, meant that any suggestion of individual scientific 'genius' had to be

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<sup>11</sup> Radio Broadcast, 15th February 1953, 'Znamenityi Deiatel' Nauki Tsiolkovskii': GARF f.6903/op.12/d.248/l.84-6

<sup>12</sup> Radio Broadcast, 15th March 1953, 'Vydaishchiisia Russkii Elektrotehnik - Aleksandr Nikolaevich Lodygin': GARF f.6903/op.12/d.248/l.237-41

<sup>13</sup> M. Arlazorov in Z-S March 1956 (No.3), p.17

quietly ignored. Heroes of science in this era rarely enjoyed flashes of inspiration, but more often produced results as the result of long and painstaking study. The narrative climax was more likely to be the October Revolution, or the book review from Lenin received on the deathbed, than it was to be the moment of actual scientific break-through. This is not to suggest that this portrayal of scientific work as methodical and mundane was untrue, but that it presented few interesting and original narratives to attract the audience. Peter Kenez, commenting on the film biographies of famous scientists produced in the late 1940s and early 1950s, notes the problem directors faced in presenting a compelling narrative:

As geniuses [the protagonists] have great ideas and correct attitudes to everything from the first moment of our meeting them. Circumstances may change. But even the Great October Socialist Revolution is able to make a difference only in the material life of a Michurin or a Pavlov; their mental world and their characters demand no further improvement.<sup>14</sup>

This problem was equally true of the popular print biographies of scientists produced in this era, and also of the presentation of science in textbooks. One widely used physics textbooks of the 1950s urged teachers not to resort to using the story of Archimedes leaping from his bath or Newton sitting under his apple-tree, at least without stating that they these historical figures ‘recognised the significance of this [event] on the basis of long contemplation, conditioned by the social demands of the time.’<sup>15</sup>

The minimal attention devoted to individual ‘inspiration’ or ‘genius’ meant that other personal characteristics needed to be highlighted in popular science propaganda. Some of the biographies of great Russian scientists in *Nauka i Zhizn*’ in the early 1950s made no attempt to present any personal characteristics whatsoever, merely describing their subjects as ‘servants of the people’, representatives of the broader Russian population and conduits for their collective, practical experience; as such these individuals were completely interchangeable, with only the dates in their biographies being altered.<sup>16</sup> When personal characteristics were bestowed upon scientists they were usually drawn from a familiar litany of

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<sup>14</sup> Kenez, *Cinema and Soviet Society*, p.241

<sup>15</sup> I.I. Sokolov, *Metodika Prepodavaniia Fiziki v Srednei Shkole* (Uchpedgiz: Moscow 1951), p.98

<sup>16</sup> A good example is A.V. Ochkin, ‘Aleksandr Mikhailovich Butlerov’ in *N&Zh* September 1953 (No.9), pp.39-40

politically acceptable traits. A good example is a brief biography of Academician Vladimir Komarov, published in 1953, which described him as a gruff paternal figure, humble (the most common adjective used to describe scientists in this era), unafraid to admit to his mistakes, good-humoured and close to the people. His willingness to literally get his own hands dirty doing botanical research was contrasted to the laziness of his Western colleagues, who would rely on research assistants for such menial chores, and it was stated that 'Vladimir Leont'evich always said that the works of scientists were ring-fenced from the people by the walls of Latin, difficult and complicated formulae.'<sup>17</sup> Russian scientists, as portrayed in propaganda of the early 1950s, bore more resemblance to simple peasant *muzhiki* than to independently-minded members of the intelligentsia.

The diligent research of scientists was clearly shown to take priority over their personal lives, and characteristics that would have, at first glance, seemed unpleasant and alienating were turned into advantages in the Stalinist system of values. A biography of the chemist Pavel Shorygin, published in 1954, described how he was 'full of life and hearty', and noted that he 'never cut himself off from life, although all his internal life was science.' However, he was shown to be an ascetic figure, rejecting even chess and the theatre as a frivolous waste of time, and only grudgingly spending half an hour at the cinema before returning to work. His reading of fiction was limited to Verne, although he died heroically, still clutching a copy of *News of the German Chemistry Society* in his hand. Apparently, Shorygin was notoriously firm with his students, who were driven 'mindless with fear' before meetings with him. The author of the article, a close relative, stated that Shorygin 'combined the real Russian traits: an expansive nature, responsive, tender, never trifling in science or life, and distinguished by his collectivism, discipline and focus.... Personal interests were alien to this Soviet scientist, who had only one aspiration - to serve his country.'<sup>18</sup> A similar article on the chemist Nikolai Shilov stated that he was hostile to 'imprecision and risqué jokes in his lectures, so firm and strong was his love for science' and that he shouted at students who displayed 'disrespect' or 'vulgarism' at work, such as referring to laboratory equipment as 'salt shakers'. He was ruthlessly utilitarian, and 'considered any theory only had use if it could be applied in practice'. It was noted approvingly that he forbade one of his laboratory assistants the day off to attend her own mother's funeral,

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<sup>17</sup> B.K. Shishkin, 'Vladimir Leont'evich Komarov' in *Z-S* January 1953 (No.1), pp.10-15

<sup>18</sup> N.N. Shorygina, 'Pavel Polievktovich Shorygin' in *Z-S* June 1954 (No.6), pp.10-16

and that this 'helped reconcile her to her loss'.<sup>19</sup> The portrayals of Komarov, Shorygin and Shilov are representative of the image of scientists projected in the early 1950s: they were men who were fiercely patriotic, their knowledge drawn from the experience of the *narod* rather than personal 'genius', approachable on day-to-day issues yet emotionally distant, subordinating their relationships and personal interests to the service of science and the state. Each laboratory, up and down the country, was thus portrayed as being guided by its own Stalin.

This patriotic and distinctly Stalinist interpretation of the nature of science was also espoused in the Soviet classroom in the 1950s, where schoolchildren were encouraged to believe that their country (the USSR and Russia being, at this level, indistinguishable) had been a pioneer in all scientific fields for the past two centuries. The instructions for the 1952-3 physics curriculum noted:

The teaching of Soviet patriotism and Soviet pride is also one of the most important tasks standing before physics teachers.... Therefore historicism in the teaching of physics acquires great significance. Students finishing middle schools must not only know the names of M.V. Lomonosov, A.S. Popov, K.E. Tsiolkovskii, N.E. Zhukovskii, A.F. Mozhaiskii, P.N. Lebedev, A.G. Stoletov, V.V. Petrov, A.N. Lodygin, B.S. Iakobi, E.K. Lents, P.N. Iablochikov, N.G. Slavianov and I.I. Pol'zunov, but must also remember their significance in general science. The question of the priority of the scientists of our country must be put to students with exhaustive clarity.<sup>20</sup>

This list no doubt included some undeservedly ignored scientists, but the majority of the names belonged to minor electro-technicians of the nineteenth century, whose work had been granted retrospective prominence when Russia became the 'home of electricity' under the Soviets. Nonetheless, students were forced to learn the significance of their work in mind-numbing detail. The fact that one of these heroes, Lents, was an ethnic German immigrant, was not to be mentioned. A second, characteristic, omission was the absence of the names of any scientists whose reputation had been made after 1917. Due to the turbulent

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<sup>19</sup> K.V. Chmutov and E.G. Zhukovskii, 'Nikolai Aleksandrovich Shilov' in *Z-S* May 1956 (No.5), pp.14-20

<sup>20</sup> 1952 Physics Programme for School Years 6-10: GARF f.A-2306/op.72/d.2864/l.2

state of the Soviet scientific community in the early 1950s, few living authorities were considered reliable enough to be included in the curriculum and, indeed, textbooks were remarkably silent about recent achievements in Soviet science.

A similar approach was taken in a chemistry guide used in the early 1950s, which urged that students study ‘great Russian scientist-patriots’ so teachers could demonstrate their ‘creative mastery of the whole rich heritage of world science, their wide scientific interests and their absence of servility towards foreign authorities.’ Students should know the names of famous foreign chemists, such as Lavoisier, Dalton and Curie, and they should realise Mendeleev’s discovery of the periodic system did not take place in a vacuum, but nonetheless they should be taught that ‘in no country could a scientist be found who could make such a bold generalisation, and in such convincing form, as Mendeleev did. The scientific achievement accomplished by our scientist was head and shoulders above those of his predecessors and contemporaries - the scientists of Western Europe and America.’ No explanation was given for why such a work should emerge in ‘backward’ tsarist Russia, or why the work could not have been completed by a foreign scientist. Furthermore, undermining the basic argument of the author, Mendeleev’s success was to be demonstrated by the fact that he was invited to speak at the Royal Society and give the Faraday Readings in London.<sup>21</sup> Similar confusion was displayed by a teaching guide for physics, which called for teachers to

....demolish distorted ideas about the historical development of the steam engine drawn from foreign literature, which conclude that the inventor of the steam engine as an industrial machine was James Watt.... An incomparably more advanced steam engine was invented and used as an industrial machine decades before, in 1763-5, by the first Russian heat engineer, Ivan Ivanovich Pol’zunov.<sup>22</sup>

Therefore, students should study Pol’zunov’s biography, and recognise his portrait, but they must be able to sketch out and label Watt’s steam engine, for the simple reason that Pol’zunov’s short-lived ‘steam engine’ bore no resemblance to the machine which commonly passed by that name.

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<sup>21</sup> D.M. Kiriushkin, *Metodika Prepodavaniia Khimii* (Uchpedgiz: Moscow 1952), pp.25, 367-8

<sup>22</sup> Sokolov, *Metodika Prepodavaniia Fiziki* p.319

The level of 'Soviet patriotism' considered appropriate in teaching varied from discipline to discipline. This can best be shown by the example of a series of posters of famous scientists commissioned by the RSFSR Ministry of Enlightenment early in 1953 to decorate the walls of classrooms. The famous faces portrayed on the posters issued for chemistry and biology were almost exclusively those of Russians, with the exception of the Lysenkoists' great French forebear Lamarck and Soviet favourite Darwin (whose 'second homeland' was, of course, Russia). Furthermore, the only living figures worthy of the admiration of Soviet schoolchildren were Lysenko himself and his follower, the uneducated charlatan Olga Lepeshinskaia. By contrast, the posters issued for physics largely portrayed foreigners, including Galileo, Faraday, Newton and Marie Curie, with only a handful of Russians, such as Zhukovskii and Lodygin, present.<sup>23</sup> Such an imbalance could also be observed in textbooks. Biology textbooks, rewritten by Lysenkoists in the late 1940s, rarely had a good word for any foreign scientist after Darwin, while physics textbooks tended to remain more cosmopolitan, partially due to the preponderance of laws which came with Anglo-Saxon names attached, something the discipline could hardly avoid. This imbalance is largely explained by the relative resistance of the physics and chemistry communities to the purges of the late 1940s, which contrasted dramatically with the complete disintegration of the biology community under the ideological pressure exerted from above and within.<sup>24</sup>

Outside schools, attacks on the 'distortion' of Western science by capitalist monopolies, and the moral complicity of Western scientists, took a wide variety of forms in the early 1950s. The most common allegation was that physicists and biologists had been reduced to cogs in a militarist machine, designing atomic and bacteriological weapons, potentially for use in Korea. Much political capital could also be made of the travails of members of the American scientific community, who one writer claimed had become, in the face of McCarthyism, 'the most oppressed representatives of the intelligentsia.' The removal of Robert Oppenheimer from his research position at Los Alamos, and the withdrawal of his security clearance, was a gift to Soviet propagandists, although they did note that by 1955 'the accused had long ago renounced the

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<sup>23</sup> Session of the Biology Education-Methodological Council of the RSFSR Ministry of Enlightenment, 5th February 1953: GARF f.A-2306/op.75/d.831/l.9-10, Session of the Physics Education-Methodological Council, 24th March 1953: GARF f.A-2306/op.75/d.831/l.24-6, Session of the Chemistry Education-Methodological Council, 25th September 1954 : GARF f.A-2306/op.75/d.739/l.40

<sup>24</sup> See Krementsov, *Stalinist Science*, pp.280-5 for an analysis of why some scientific communities negotiated the ideological campaigns of the late 1940s more successfully than others.

firm, progressive views' that he had held before the war. However, the description of a government seeking to turn researchers into 'robots' by 'interfering in the personal life of scientists, excavating their biographies, their thoughts and even the thoughts of their close and distant relatives' must have been seen by many to have had an uncanny parallel to events closer to home.<sup>25</sup>

Attempts to paint the situation of science under capitalism in a poor light extended into every field and showed considerable imagination. A radio broadcast in March 1953, which focused on the work of a Soviet dietician, noted that her work would have been impossible in the capitalist West: 'There, scientists preach the use of minimal feeding, that is the regime of feeding which condemns workers to a half-starved condition and premature death.'<sup>26</sup> A 1954 article seized on the dramatic difference between the use of electricity, that most symbolic of technological advances from the Soviet point of view, in the USA and the USSR:

The book *The History of Electricity*, recently published in the USA advertises, with great cynicism, the electric chair - a tool for the torturous killing of people. This 'victory' of the 'new light' couldn't better symbolise the degeneration and inhuman direction taken by this laudatory technology in the USA. Electricity is the same in the USSR and America. But in the hands of American monopolies it is directed to the oppression of humanity, to the preparation of war, while for us it serves the cause of peace, the great task of the construction of communism.<sup>27</sup>

Similar stories of the 'distortion' of otherwise beneficial technology were utilised by many propagandists and lasted well into the 1960s. One author, writing in 1961, acknowledged that American workers were more likely to own cars than their Soviet counterparts, but argued that this merely provided their despairing wives with a convenient means of gassing themselves and their children when they were, inevitably, overwhelmed by the crushing burden of debt.<sup>28</sup> Any story which provided a connection with Nazi Germany was also seized upon gleefully by propagandists; for instance, in 1956, an article reported on

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<sup>25</sup> G.E. Ryklin, 'K Voprosu o Robotakh' in *N&Zh* February 1955 (No.2), pp.45-6

<sup>26</sup> Radio Broadcast, 11th March 1953: 'Zhenshchiny - Uchenyi Strany Sovetov': GARF f.6903/op.12/d.248/l.212

<sup>27</sup> B. Riabkin, 'Rasskazy ob Elektrichestve' in *Z-S*, August 1954 (No.8), p.19

<sup>28</sup> E.Ia. Drabkina, *Gde Roboty Vytesnaiut Liudei* (Gospolizdat: Moscow 1961), pp.129-30

the production of Messerschmidt's new automobile, the Super-200, in the FRG, noting caustically the high speeds it could achieve and the remarkable resemblance it bore to a fighter aircraft.<sup>29</sup> A widely-used astronomy textbook of the early 1950s also promoted guilt by association when it described how the USA had 20 astrological journals and 3000 astrological columns in newspapers, therefore demonstrating how the ideologues of the USA, like those of Nazi Germany, were obsessed with the mystical significance of the heavens.<sup>30</sup> Such rhetoric could reach even more ridiculous levels: one propagandist wrote in 1953 that Niels Bohr's highly rarefied theory of 'complementarity', proscribed in Soviet interpretations of quantum physics, was nothing more than a cover for bourgeois sociological theories that justified colonialism and the suppression of national minorities.<sup>31</sup> These ideological clichés even appear to have been internalised by some, such as one teacher who, in a 1953 discussion of physics textbooks warned his colleagues that 'people often believe that what is contemporary is good, so for example [Bohr's] Copenhagen School is contemporary, but it is not good, fascism is contemporary, but it is in no way good.'<sup>32</sup>

The science propaganda of the early 1950s thus maintained the impression that science was clearly divided into 'two worlds'. The first was the world of humane, Soviet science, which had emerged seamlessly from the tradition of progressive Russian science, and was led by simple, 'humble' scientific patriarchs who demanded the respect and obedience of their juniors, but were unflagging in their devotion to the state and the *narod*. The other was the world of corrupt, bourgeois science that, having forsaken its Enlightenment heritage, was incapable of producing any valid scientific research. Obscurantism and militarism now reigned in the West, and as such there could be no meaningful dialogue between these two communities. This was the perception that had to be gradually broken down in the mid-1950s if there was to be any kind of rapprochement between the scientists of the USSR and the West.

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<sup>29</sup> 'Vo Vsem Mire: Snova Messerschmidt' in *Z-S* May 1956 (No.5), p.27

<sup>30</sup> V.A. Shishakov, *V Pomoshch' Uchiteliu Astronomii* (Uchpedgiz: Moscow 1950), p.86

<sup>31</sup> N.F. Ovchinnikov, "'Fizicheskii" Idealizm - Vrag Nauki' in *N&Zh* March 1953 (No.3), pp.42-4

<sup>32</sup> Session of the Physics Education-Methodological Council of the RSFSR Ministry of Enlightenment, 23rd November 1953: GARF f.A-2306/op.75/d.735/l.3

## THE 'TWO WORLDS' QUESTIONED

It has been noted that in the literary sphere, the years between Stalin's death and the 20th Party Congress saw the widespread performance and reprinting of classic works by 'safe' authors, such as Shakespeare and Pushkin, as a means of avoiding controversy at a time of bewildering political changes.<sup>33</sup> This was also partially true in scientific propaganda, where reliance on a limited stock of 'patriotic' clichés from the *Zhdanovshchina* remained a safe option between 1953 and 1956. However, the inherent flaws in such propaganda did not go unnoticed by propagandists and educationalists, who believed that they limited both the educational potential and the accessibility of their work. Therefore criticism began to mount, even prior to Stalin's death, amongst teachers who were concerned by the impact that 'patriotic' science teaching had on the knowledge of their students.

One textbook author, V.V. Krauklis, during a discussion in January 1953, argued against crediting Lomonosov with the discovery of absolute zero a century before its 'rediscovery' by the 'idealist' Tompson, stating 'It is entirely unnecessary that, in order to prove the priority of our science, we need to denigrate the achievements of scientists of other nations.'<sup>34</sup> Such complaints began to mount, and discussing the content of biology textbooks in late 1954, one educationalist noted that textbooks were 'over-loaded' with dry historical material, when they should instead seek to 'contrast the situation of scientists in the USSR with those in capitalist countries.'<sup>35</sup> The author of one textbook added:

We shouldn't write in a distorted form about science in the West. They are ahead of us in many questions of physiology. It is often said officially at conferences that we are decades behind. The West has its science too. We must consider our own science, but this does not mean relating thoughtlessly towards foreign science.<sup>36</sup>

Teachers and authors of textbooks do seem to have generally believed, with some justification, that the Russian contribution to science had been neglected in the past. However, there also seems to have been

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<sup>33</sup> T.M. Goriaeva, *Politicheskaiia Tsenzura v SSSR, 1917-1991* (Rosspen: Moscow 1992), pp.306-7

<sup>34</sup> Session of the Editorial Board of *Fiziki v Shkole*, 13th January 1953: GARF f.A-2306/op.75/d.730/l.29

<sup>35</sup> Session of the Biology Education-Methodological Council of the RSFSR Ministry of Enlightenment, 9th-10th December 1954: GARF f.A-2306/op.72/d.3708/l.55-7

<sup>36</sup> *ibid*: GARF f.A-2306/op.72/d.3708/l.146

a growing consensus that the inflated boasts of the *Zhdanovshchina* were harmful rather than constructive.

Another textbook author, also speaking in December 1954, noted

We do not cover the question of the illumination of the role of great scientists correctly in our textbooks in some disciplines. Quite correctly, during 1948, we decided to throw out pictures of famous foreign scientists, in order to make a break [*perelom*]. But today we are lagging behind and this, to a certain extent, also applies to higher schools. There are teachers who come to middle schools not knowing the names of the great scientists connected with the development of certain areas of chemistry.<sup>37</sup>

It was during 1955 that it first became publicly acceptable to discuss foreign science and technology in a more positive light. This was heralded by a broadcast in April 1955 by the aged Academician A.G. Krzhizhanovskii, who had been overseer of GOELRO in the 1920s, prior to his fall from grace under Stalin. Krzhizhanovskii spoke on Lenin's theory of the development of technology, but instead of focusing on narrow-minded patriotism, he argued that Lenin had urged scientists to learn from 'world culture, never rejecting any part of it.'<sup>38</sup> The deputy chairman of 'Znanie', Ivan Laptev, also addressed the section leaders of the society on the subject of 'scientific patriotism' in April 1955. He stated firmly

There are serious errors and mistakes in scientific-technical propaganda. You often come across scornful attitudes to the use of the achievements of foreign science and technology in lectures that are read and pamphlets that are printed. Such an attitude to the achievements of foreign science inflicts real harm to our socialist national economy.... Such jingoism [*kvasnyi patriotizm*] as this scornful attitude to the achievements of foreign science must be decisively removed from our propaganda.<sup>39</sup>

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<sup>37</sup> Session of the Chemistry Education-Methodological Council of the RSFSR Ministry of Enlightenment, 9th-10th December 1954: GARF f.A-2306/op.72/d.3704/l.72

<sup>38</sup> Radio Broadcast, 15th April 1955, 'Lenin i Nauka': GARF f.6903/op.12/d.251/l.171

<sup>39</sup> Meeting of 'Znanie' Section Leaders, 25th April 1955: GARF f.9547/op.1/d.1050/l.16-7

The irony was that Laptev, as one of the most prominent Lysenkoist agitators of the late 1940s, had himself been one of the most virulent exponents of 'jingoism'. It was also noticeable that it was in relation to propaganda devoted to Western technology, which could be portrayed in a relatively pragmatic, utilitarian fashion, that the scientific achievements of the capitalist world could first be reappraised.

The reappraisal of the portrayal of science in the media received official sanction with the Central Committee plenum of July 1955, at which Bulganin delivered a paper on the development of Soviet science and technology. He criticised those who were complacent about the superiority of Soviet technology, arguing that this caused 'great harm' to technological and economic progress. He also denounced those workers, managers, bureaucrats and scientists who held an 'entirely incorrect view in regard to foreign science'. Furthermore, he added that 'such people make use of boastful phrases in order to conceal their own ignorance.' He went on to call for an expansion of scientific exchanges with the West, an increased flow of technical information and the publication of more translations of foreign technical literature.<sup>40</sup> Science was therefore being written into the emerging Khrushchëvian doctrine of peaceful co-existence; scientists no longer lived in two separate and insulated worlds, but could engage in fruitful negotiation and competition, judged by universal standards. Specialists at the Academy of Sciences, including Academicians Nesmianov, Shcherbakov, Oparin, Keldysh, Kapitsa and Dubinin, were employed after the plenum to draw up materials that would assist in the 'liquidation of the lagging of our science behind that abroad.'<sup>41</sup> After July 1955 it became more acceptable for scientific propaganda to focus on developments abroad, especially in Western countries, in a positive light. The first radio broadcast that I have identified which was entirely devoted to achievements in foreign science and technology was broadcast on 3rd September 1955.<sup>42</sup>

Attempts to 'internationalise' Soviet science, and its portrayal in the media, were also aided by an ideological innovation that emerged after this plenum and had received the full sanction of the Party by the early 1960s. Stalin, in his 1950 work *Marxism and Linguistics*, had granted language an objective existence

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<sup>40</sup> *Pravda*, 17th July 1955, pp.2-3

<sup>41</sup> Presidium of the Academy of Sciences Order No.449, 19th April 1955 'O Meropriiatiakh po Vypolneniiu Porucheni Predsedatelia Soveta Ministrov SSSR Toverishcha N.A. Bulganina': ARAN f.2/op.1-55/d.90/l.10-15

<sup>42</sup> Radio Broadcast, 3rd September 1955, 'Novosti Zarubezhnoi Nauki i Tekhniki': GARF f.6903/op.12/d.252/l.83-98

outside of the narrow parameters of productive forces, base or superstructure; having no class essence it survived class-based revolutions intact.<sup>43</sup> During the 1950s ideologues increasingly began to apply this logic not only to language, but also to theoretical sciences. One ruthlessly Stalinist ideologue, Dmitrii Troshin, stated the new orthodoxy in 1961 when he argued that science was not part of the superstructure but was ‘a specific, independent social phenomenon’ and, while science was not a ‘productive force’, the ‘natural sciences, serving production, are directly connected to the productive forces of society, while social sciences are tied to it via the base and the superstructure.’ Therefore, science could not be compared to the arts or social sciences, and ‘two worlds’ did not exist in science in the way they did in those fields. While *partiinost*’ in science could not be renounced it was now considered ‘dogmatic’ to assert that science was purely class-based.<sup>44</sup> Such orthodoxy became consolidated when theorists of the scientific-technical revolution stated that science would be transformed into a ‘direct productive force’, meaning that science in both the West and in the socialist states would become, if anything, more objective rather than more ideological as time passed. Therefore co-operation between scientists in the USSR and abroad, and favourable coverage of foreign scientific achievements, could be ideologically justified.

The gradual opening up to the West that occurred after 1953 was accompanied by spasmodic denunciations of the ‘cult of personality’, which had a noticeable impact on scientific propaganda. It was now considered unseemly to focus excessively on leading scientific patriarchs while ignoring the economic and social factors that conditioned scientific development. During the summer of 1953, while the first attacks on the ‘cult of personality’ were being launched in connection with the overthrow of Beria, the Second All-Union Conference on the History of Science was being held, its 600 delegates devoting much of their time to a discussion of the definitive, three-volume *History of Science in the USSR*. The chief editor, Nikolai Figurowskii, was now forced to confess to extensive errors in the third volume, devoted to the period after 1917, conceding that ‘all the material was divided into sections devoted to the activity of great scientists and the history of leading scientific institutions’ and that this ‘insufficiently illuminated the connection between the development of Soviet science and Soviet society.’ Figurowskii admitted that the

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<sup>43</sup> I. Stalin, *Marksizm i Voprosy Iazikoznaniia* (Gospolizdat: Moscow 1950)

<sup>44</sup> D.M. Troshin, *Mesto i Rol' Estestvoznaniia v Razvitii Obshchestva* (Visshaia Shkola: Moscow 1961), pp.58, 62-4, 135; see also Paul Josephson, ‘Science and Ideology in the Soviet Union: The Transformation of Science into a Direct Productive Force’ in *Soviet Union-Union Sovietique* Vol.8, No.2 (1981), pp.159-85

third tome would now have to be fundamentally reworked, a project which was expected to take at least two years.<sup>45</sup> Several speakers also argued that recent works such as the *History of Science in the USSR* failed to take account of the ‘mutual influences and interconnections’ between the science of different countries.<sup>46</sup> Similarly, in the midst of the renewed campaign against the ‘cult of the individual’ in 1956, Mikhail Arlazorov’s biography of the aviation pioneer Zhukovskii received a mixed reception from the reviewer at *Znanie - Sila*. The review acknowledged that the book successfully demonstrated Zhukovskii’s negative traits, such as political naiveté, as well as his intelligence and diligence, but that it relied on too many epithets, such as ‘genius, magnificent, brilliant, significant, amazing, great’ and created the impression Zhukovskii had worked in a vacuum, independent of any scientific or social context.<sup>47</sup> The ‘great man’ theory of the history of science was falling out of favour.

A precedent for gradually diminishing the influence of such theories, as well as that of ‘Soviet patriotism’, was established within higher schools by a decree of the Ministry of Higher Education, issued on 25th February 1955. It praised the increased attention paid to history of science since 1950 but decreed that lecturers must now turn their attention to the ‘achievements not only of native, but also world, science and technology.’<sup>48</sup> The decisive turning point for secondary education came a year later, with a circular sent to teachers following the 30th June 1956 Central Committee decree ‘On Overcoming the Cult of Personality and its Consequences’. This circular outlined a series of corrections both in style and content that needed to be introduced into all areas of the school curriculum, and the natural sciences were not excluded:

In school textbooks the whole development of science and technology is ascribed to a number of individually outstanding scientists and engineers. Not denying the great service of outstanding personalities - the authors of great discoveries and inventions - it is necessary to turn attention to the creative achievements of the masses.... It is necessary to show that each great discovery in

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<sup>45</sup> Cherkashin and Aleksakhina to Pospelov, [n.d.: June-July 1953]: RGANI f.5/op.17/d.418/l.110-1

<sup>46</sup> I.A. Poliakov ‘Vtoroe Vsesoiuznoe Soveshchanie po Istorii Estestvoznaniia’ in *Vestnik Akademii Nauk SSSR* May 1953 (No.6), pp.85-95

<sup>47</sup> M. Kulaev, ‘Doroga Otkryte’ in *Z-S* November 1956 (No.11), p.19

<sup>48</sup> Order No.144 of the USSR Ministry of Education, in *Visshaia Shkola: Osnovnye Postanovleniia, Prikazy i Instruktii* (Sovetskaia Nauka: Moscow 1957), p.86

science, each invention, is prepared by many people. This is insufficiently covered in present textbooks....<sup>49</sup>

Not only did the circular thus criticise the ‘great man’ approach to the study of history, which had been so characteristic of late Stalinism, it also called for science to be taught to students in a context that emphasised its internationalist, universal attributes:

The names of national scientists and innovators in production and the practical activity of the masses, the base for the development of scientific and technical ideas, must be known to students. However, science and technology develop not only on the basis of the accumulation of national experience, but also on the basis of the experience of the whole world. Students must have general concepts of the world-historical basis of the development of science and technology. Teachers should select and introduce factual material covering this. Showing the priority of our country in a series of discoveries, inventions and technical improvements, we cannot at the same time forget the achievements of foreign countries in this or that historical epoch. It must be explained to students that for the further elevation of all areas of the economic and cultural life of our country we must study all aspects of foreign science and technology, using in the interests of the Soviet people all that is best from other countries.<sup>50</sup>

It should be noted that demonstrating the achievements of ‘foreign countries in this or that historical epoch’ in no way ruled out denigrating *current* achievements in capitalist countries and assuming, unquestioningly, that the socialist USSR was now outstripping the West.

Therefore I.I. Sokolov’s 1951 guide to teaching physics, which was full of ‘patriotic’ assertions of Russian priority in the sciences, was heavily revised when it was reissued in 1959. The book now had no introductory section on the cultivation of ‘Soviet patriotism’ in physics, and it was not historicised to the extent that the 1951 edition had been. The course was no longer to be introduced historically, to avoid

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<sup>49</sup> ‘O Preodolenii Kul’ta Lichnosti i ego Posledstviu v Prepodavanii Uchebnikh Predmet’: GARF A-2306/op.72/d.5268/l.31; for a commentary on other sections of this document see Polly Jones *Strategies of De-Mythologisation in Post-Stalinism and Post-Leninism: A Comparison of De-Stalinisation and De-Leninisation* (Unpublished D.Phil Thesis: Oxford 2002), pp.167-73

<sup>50</sup> *ibid*: GARF f.A-2306/op.72/d.5268/l.32-3

'overloading [students] with excessive information' and the nineteenth-century electrotechnicians, the significance of whose work had been so exaggerated in the 1940s, were relegated to study in after-school clubs as 'there is not enough time in class for this'. Lomonosov was no longer credited as the discoverer of the principle of the conservation of energy, nor were the genuine founders of this theory attacked. Instead it was claimed that Lomonosov's work contained the hint of 'the idea' but that its 'final formulation' had been arrived at by Mayer and Helmholtz.<sup>51</sup> This pattern was followed in other textbooks produced in the late 1950s; while educators strove to retain a 'patriotic' element in the curriculum the aggressive ideological slogans and crude distortion of facts characteristic of the *Zhdanovshchina* slowly disappeared.

## INTERNATIONALISING SCIENCE

Once a more objective attitude to reporting science in foreign countries emerged it established itself quickly, and became surprisingly 'liberal'. The first wholly positive article on Western science to be published in *Znanie - Sila* was in the January 1956 issue, when the journal reported on the American success in synthesising element 101, Mendeleevium. The fact that the new element, derived in the USA, bore the name of one of Russia's greatest scientists obviously precluded any critical comment and the usual mentions of the military goals of American atomic research were noticeable by their absence.<sup>52</sup> A year later the journal could report on the visit of a Soviet delegation to Georgetown University, which their correspondent referred to as Washington's 'Catholic University', without making any of the previously obligatory comments on the antipathy of materialist science and popery.<sup>53</sup> It was not only the science of the capitalist West which now re-emerged into public view; the retreat of Stalinist dogmas also allowed the work of Yugoslav scientists to be portrayed in a positive light. During 1956 *Nauka i Zhizn'* included the Yugoslav Nikolai Tesla amongst its monthly pen-portraits of great scientists, and in May 1956 it conducted an interview with I. Obradovich, a correspondent of the Serbian Academy of Sciences, during his stay at a scientific conference in Moscow. This was the first time the journal has focused on the work of a Yugoslav

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<sup>51</sup> I.I. Sokolov, *Metodika Prepodavaniia Fiziki* (Uchpedgiz: Moscow 1959), pp.10, 89-90, 212

<sup>52</sup> A. Lavrenenkova, 'Poiski i Otkrytiia' in *Z-S* January 1956 (No.1), p.21-4

<sup>53</sup> B.F. Nozdrev, 'Na Kongresse Akustikov' in *Z-S* January 1957 (No.1), p.20-5

scientist since the beginning of the Stalin-Tito split.<sup>54</sup> Recognition was even extended to scientific communities working under ‘fascist’ regimes, as in a radio report about a 1957 scientific conference in Barcelona. The report commented on the high quality of the scientific research being conducted in Francoist Spain and the desire of Spanish scientists for closer ties with the USSR, while a section commenting on the ‘dissatisfaction’ of Spanish scientists with their ‘government’s attitude to science’ was censored prior to broadcast.<sup>55</sup> It also became acceptable to refer to Russian émigré scientists in favourable terms and by 1958 the theories of the Russian émigré physicist Georgii Gamow, a *bête noire* of the Stalin period, could be openly discussed in the popular press without condemnation of his background or ideological outlook.<sup>56</sup>

The journal *Nauka i Zhizn’* saw a rapid decline in the number of articles which were devoted to ideological attacks on Western scientists, from fourteen in 1953 to seven in 1955 and two in 1957. Therefore, by the late 1950s this leading popular science journal had a far greater resemblance to its Western counterparts, explicitly ideological content being relegated to framing paragraphs in major articles and occasional editorial diatribes, a dramatic contrast to a decade earlier. The increased focus on science in the capitalist world also led to less attention being devoted to the work of scientists in the People’s Democracies. *Nauka i Zhizn’* had devoted at least one article to this topic in virtually every issue between 1953 and 1955 (usually focused on agricultural machinery or something equally practical) but such articles became increasingly rare after this, and by the 1960s the People’s Democracies were virtually absent from the pages of the magazine, although articles on the use of modern technology in the Third World did, in some ways, serve a similar purpose.

The tone and presentation of popular science articles changed dramatically in the mid-1950s, as can be demonstrated with one representative example. An article on probability theory, published in *Nauka i Zhizn’* in 1954, decried virtually all foreign theorists in the field, from Laplace onwards, as defenders of philosophical ‘subjectivism’. It asserted that ‘progressive, materialist science, being primarily Russian and Soviet science, had proved the complete nonsense of the subjectivist-idealist understanding of probability’ bolstering this statement with lengthy quotes from Lenin, Marx and Engels. Unflattering caricatures of Western scientists as blind, incompetent old fools, dressed in the style characteristic of the old Russian

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<sup>54</sup> I. Obradovich, ‘Dlia Blaga Narodov’ in *N&Zh* May 1956 (No.5), p.6

<sup>55</sup> Radio Broadcast, 26th July 1957 ‘V Mire Nauki i Tekhniki’: GARF f.6903/op.12/d.356/l.316

<sup>56</sup> V. Rydnik, ‘Rozhdenie Atomov’ in *Z-S* February 1958 (No.2), p.5

intelligentsia, accompanied the article.<sup>57</sup> By contrast, an article published two years later did not distinguish between the ‘worldview significance’ of the works of Chebyshev and Laplace, the Russian and foreign founders of probability theory, and acknowledged that ‘the successful development of this science also went on abroad.’ Quotes from Marxist classics, and ideological labels like ‘subjectivism’, were entirely absent from the text, replaced by favourable references to contemporary American research and technical descriptions of the application of probability theory in electronics and other technical fields. The illustrations accompanying the article were now of neutral, business-like scientists going about their work in an orderly fashion.<sup>58</sup>

Propagandists and authors of popular science works now became increasingly aware that their work could be scrutinised by scientists in the West, and that maintaining good relations with the Western scientific community was once again of some importance (this was to have some significance with regard to the campaign against Lysenko, as will become clear in Chapter 4). An example of how seriously this was taken is shown by a rebuke directed at the editors of *Tekhnika - Molodezh'* in 1956 after the journal published an article showing how Soviet scientists, led by Academician Shcherbakov, were engaged in the ‘storming’ of the Arctic. The article demonstrated how the Soviet Union would ‘conquer’ the Arctic in the way it had developed and colonised the Far North of the USSR. The editors were criticised for being ‘careless’ and ‘superficial’ in their treatment of the topic, ignoring the fact that the territory was disputed by a number of states and that the Soviet scientific expedition, by international agreement, was only scheduled to remain in place until 1958. A second article, correcting the errors of the first, was hastily commissioned to repair any damage that might have been done.<sup>59</sup> It is clear that the propaganda establishment wished to avoid embarrassing the Soviet Union in the eyes of foreign observers.

Occasional difficulties did arise with this new, more international presentation of science. One of the greatest dilemmas of this time of transition arose in 1958, when the Soviet physicists Pavel Cherenkov, Igor Tamm and Il'ia Frank won the Nobel Prize for Physics. The Soviet Union had boycotted the Nobel Prizes between 1945 and 1953 and had received its first prize only in 1956, when Nikolai Semënov won the

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<sup>57</sup> L.E. Maistrov, ‘Bor’ba Materializma s Idealizmom v Teorii Veroiatnostei’ in *N&Zh* April 1954 (No.4), pp.43-5

<sup>58</sup> Iu.V. Linnik, ‘Teoriia Veroiatnostei v Praktike’ in *N&Zh* October 1956 (No.10), pp.11-13

<sup>59</sup> S. Aristov and F. Konstantinov to CC CPSU, 11th April 1956: RGANI f.5/op.33/d.18/l.1-2

Nobel Prize for Chemistry (a botched application in 1955 had led to his candidature being rejected and a Soviet protest that the prizes could 'hardly be considered international').<sup>60</sup> However, his acceptance had been overshadowed by the Soviet invasion of Hungary, and in 1958 the achievement of the Soviet scientists was to become mired by controversy again, this time by the award of the Nobel Prize for Literature to Boris Pasternak, for *Doctor Zhivago*. This time the Soviet authorities tried to justify the acceptance of the scientific prize and the renunciation of the artistic prize, on Pasternak's behalf. They noted that the scientists had already been recognised at home by the award of the Stalin Prize in 1946, and that their work had been conducted under Academy President Sergei Vavilov, a politically-reliable figure:

In this connection, one cannot but recall V.I. Lenin's statement to the effect that while in the field of factual, specialised studies bourgeois scientists could be objective, in the evaluation of social phenomena, including literary works, they are wholly influenced by the ideology of the ruling class. A comparison of the works awarded prizes in the natural sciences - chemistry and physics - and in literature conclusively shows that while in the first case the actual scientific value of the works was the decisive factor in the selection, in the second case definite political goals were of exceptional importance.<sup>61</sup>

Cherenkov, Tamm and Frank were able to travel to Stockholm and receive their prize (although only after Pasternak had renounced his own award) largely thanks to the recognition that science, no longer solely part of the 'superstructure', had an objective existence independent of its political and social context, a feature that distinguished it from the arts.

Despite such controversies, liberalisation continued, and from the late 1950s explicit attacks on Russian chauvinism in the field of scientific endeavour began to appear. Although they rarely sought to explicitly contrast 'internationalism' with the 'patriotic' campaigns of the *Zhdanovshchina*, these statements were evidently intended as a criticism of the rhetoric that had pervaded Soviet science in the late 1940s. The authors of one book published in 1957 captured the new mood regarding such petty nationalist self-aggrandisement, when they stated

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<sup>60</sup> A.M. Blokh, *Sovetskii Soiuz v Inter'ere Nobelevskikh Premii*, pp.271-2, 321

<sup>61</sup> *Pravda*, October 29th 1958, p.4

...more and more often the successes of scientists of our country are applauded by an amazed world. No, we're not infected with Russophilism, nationalism or any other "sickness of the soul" as the great proletarian humanist Maxim Gor'kii named these mental quirks.... We do not consider the nations settled on the territory of the USSR more talented than others. No, like all communists of the world, we know that socialist society opens immeasurable possibilities for the development of the abilities of man.<sup>62</sup>

The change in the official attitude towards foreign science can be demonstrated by a number of works published in the late 1950s on Dmitrii Mendeleev, perhaps Russia's most famous scientist. The first such work was a detailed study of Mendeleev's research on the Periodic Law, published in 1958 by Bonafaty Kedrov, a controversial yet influential Soviet ideologue and historian of science. Kedrov had fallen into disgrace in 1949, at which point his work on the influence of world science on Mendeleev had been withdrawn from publication.<sup>63</sup> He remained a 'liberal' within the Soviet ideological establishment and was criticised numerous times during the 1950s for over-stepping the implicit limits of the 'Thaw', while he continued his research on Mendeleev. The conclusion of Kedrov's 1958 study refuted the ideas of those, including Turgenev, who believed that systematic scientific enquiry was simply 'not a Russian thing', but he then urged

...having proven that an ability for scientific, synthetic generalisations and systemisation is not alien to the psychology of Russians, we must not fall into the other extreme - we must not see some exceptional national characteristic, inherent to Russians and them only.<sup>64</sup>

Kedrov instead adopted a Marxist analysis, relating Mendeleev's achievement to the economic and social forces that had been unlocked by the reforms of the 1860s. He heavily emphasised that Mendeleev's

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<sup>62</sup> M. Vasil'ev and S. Gushchev, *Reportazh iz XXI Veka* (Sovetskaia Rossiia: Moscow 1962), p.7

<sup>63</sup> See Werner G. Hahn, *Postwar Soviet Politics: The Fall of Zhdanov and the Defeat of Moderation, 1946-1953* (Cornell University Press: 1982), p.167

<sup>64</sup> B.M. Kedrov, *Den' Odnogo Velikogo Otkrytiia* (Izdatel'stvo Sotsial'no-Ekonomicheskoi Literatury: Moscow 1958), pp.317, 320

work was directly influenced by the work of foreign, especially Western, scientists, stating that the claim by ‘bourgeois ideologists’ (and, implicitly, Stalinist ideologues) that ‘only certain “chosen” nations have an inclination to scientific creativity’ was based only on ‘idealism and racism.’<sup>65</sup> Kedrov followed a similar line in a popular article for *Nauka i Zhizn*’ which, without citing one example of a Russian influence on the thought of Mendeleev, argued the development of the Periodic Law had been the result of the work of scientists from ‘many countries and nations’.<sup>66</sup> Kedrov’s article contrasted dramatically with works on Mendeleev from the 1940s that sought to situate him in a specifically Russian context, and had an obvious impact on a popular biography of Mendeleev written by Oleg Pizarzhevskii. This work demonstrated how Mendeleev had an ‘organic dislike of the unpleasant activities of capitalist America’, which he had witnessed on a working visit, but it did not seek to contest claims that Mendeleev had been inspired by Western scientists, nor imply that there was any hostility between him and foreign researchers.<sup>67</sup> This was in stark contrast to a previous biography of Mendeleev written by Pizarzhevskii in 1949, which dismissed the impact of Western research on his work, denigrated the intellectual achievements of chemists in nineteenth century Western Europe and criticised historians of science who had placed European influences on Mendeleev before those of his Russian ‘mentors’:

They [Western historians of science] present Mendeleev to their readers as a slavish student of Western masters..... Actually, as we know, the airs that Mendeleev breathed deep into his lungs, as he stood atop the scientific peaks, were the lectures of Voskresenskii.<sup>68</sup>

The only residue of such ‘patriotic’ diatribes in Pizarzhevskii’s 1959 biography was a lengthy attack on Robert Nobel, for allegedly plagiarising Mendeleev’s work, in what was no doubt a reaction to the Pasternak controversy the previous year.<sup>69</sup> Thus, by the end of the 1950s, Russia’s most famous scientist had been removed from stoic isolation and restored to a European, international context.

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<sup>65</sup> *ibid*, p.317

<sup>66</sup> B.M. Kedrov, ‘Periodicheskii Zakon i Mirovaia Nauka’ in *N&Zh*, January 1957 (No.1), pp.5-10

<sup>67</sup> Oleg Pizarzhevskii, *Dmitrii Ivanovich Mendeleev* (Akademiia Nauk: Moscow 1959), p.375

<sup>68</sup> Oleg Pizarzhevskii, *Mendeleev* (Molodaia Gvardiia: Moscow 1949), pp.83, 117, 217

<sup>69</sup> Pizarzhevskii, *Dmitrii Ivanovich Mendeleev*, pp.287-94

A popular biography of the nineteenth century physiologist Ivan Sechenov, published in 1959, was similarly devoid of patriotic rhetoric. Sechenov's long period of study in Germany was described positively, and the interest of his German colleagues in Russian politics and literature was described. The author noted that when the time for Sechenov to return to tsarist Russia came he was 'scared' and, rather than assert that this unwillingness was overcome by feelings of duty to his motherland, it was also stated that Sechenov had 'fallen in love with Germany and its simple and kind people.' Instead of framing Sechenov's life within a narrative of patriotism and service to his people, his biography was transformed into a love story, the climax of which was the moment at which the hero surrenders his post at St. Petersburg University to marry the woman he loves.<sup>70</sup> The private life of the scientist was obviously now held to be of as much interest as his contribution to public life, something that was increasingly true, as we shall see, in the scientific narratives of the early 1960s.

It is not only retrospective accounts of nineteenth-century Russian science that were transformed in the late 1950s. It also became increasingly clear that the achievements of the space age were to be portrayed as the fruits of socialism, rather than any primeval Russian genius, and public figures were quick to upbraid those who resorted to the rhetoric of the 1940s. Academician Vladimir Engel'hardt, writing in 1962, criticised popular science writers who spoke about the achievements of 'our science', when 'they are talking about data which has already been established for quite some time in other countries around the world.'<sup>71</sup> The leading popular science writer of the 1960s, Daniil Danin, expressed his hostility to scientific nationalism on numerous occasions. Reviewing the posthumous memoirs of the Soviet physicist Abram Ioffe in 1961 he commented on Ioffe's friendship with Einstein and Röntgen during the period when the Germans had sought to create an 'Aryan physics', noting that this demonstrated the 'uncompromising morality and internationalism of the brotherhood of the great men of science.'<sup>72</sup> The comment could equally well have been read as an Aesopian criticism of the *Zhdanovshchina*, when Jews had been purged from research institutes and attempts had been made to initiate widespread upheavals in the physics community. Danin's views on scientific nationalism were made clear in an article published in 1966, where he stated

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<sup>70</sup> M.I. Ianovskaia, *Sechenov* (Molodaia Gvardiia: Moscow 1959), esp. pp.5, 14-15, 129, 95, 320-2

<sup>71</sup> V.A. Engel'hardt, 'Mysl' o Nebelkovykh Formakh Zhizn' Lishena Vsiakikh Osnovanii' in *N&Zh*, April 1962 (No.4), p.9

<sup>72</sup> D. Danin, 'Pamiatnye Vstrechi' in *N&Zh*, August 1961 (No.8), p.32-3

that 'scientific discoveries and works of art always have a passport.... They are social and national in origin. But the most worthy of them achieve a worldwide life.... They belong to everyone and to all time.'<sup>73</sup> Hence, only the work of journeymen scientists could be defined by its national origin, while the truly great works of science were cosmopolitan and international. Such statements, which would have been regarded as 'kow-towing to the West' in the 1940s, could now be freely voiced by respected scientific figures such as Engel'hardt and Danin, even if such honesty remained relatively rare.

This new openness to Western science was expressed in a wave of movies about Soviet scientists which hit Soviet screens in the early 1960s. These films generally presented Soviet scientists as cosmopolitan figures who were at home with Western scientists and familiar with their works. Both the respected Academician Dronov in 1963's *Vsë Ostaetsia Liudiam* and the youthful doctoral student Tim in *Ulitsa N'iutona, Dom 1* have 'appropriate' Soviet portraits on their walls (Lenin in Dronov's case, Gagarin in Tim's), but it is to a portrait of Einstein each of them turns when they are in need of inspiration. When Tim confronts a treacherous colleague, Gal'tsov, in a packed lecture theatre he strides past a row of plaster reliefs of both Soviet and foreign scientists, including Jolio-Curie, Kurchatov, Planck and Einstein, as if drawing moral courage from their collective gaze. The researcher Krylov, the protagonist in the cinematic adaptation of Daniil Granin's novel *Idu na Grozu*, is toasted by foreign colleagues and reads English detective novels, while Dronov happily confers with colleagues in Cambridge and engages in that most 'cosmopolitan' of hobbies, stamp-collecting. When Grigorii Chukrai wished to demonstrate, in his film *Chistoe Nebo*, that the physicist Mitia has achieved success, he is not shown wearing a Soviet medal; instead, he flourishes an English translation of his research (however improbable this might have been in 1953, when the scene is set). Soviet approval and acceptance of Western science was now assumed, and the approval of the West was actively sought in order to validate Soviet research.

This implicit acceptance of the validity of Western science went unmentioned by film critics until Mikhail Romm's 1962 film *Deviat' Dnei Odnogo Goda*, which portrayed life in a secret nuclear facility, provoked a heated public discussion. One of the heroes of the film, the brilliant, urbane, but supposedly 'superficial' Kulikov, believes that science is inextricably bound up with the creation of ever more

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<sup>73</sup> D. Danin, 'Vozmozhnye Resheniia: Iz Dnevnika Literatora' in L. Vorob'ev (ed.), *Khudozhnik i Nauka* (Znanie: Moscow 1966), p.70

devastating weapons, humanity not having progressed morally in millennia. The unstated assumption of his argument is that socialist and capitalist states have equally cynical motives for funding scientific research. Romm revealed what had led him to focus on physicists in a contemporary radio interview:

Soviet physicists are continuously forced to come into contact with material that forces them to unwillingly think about the destiny of man. Each new discovery in physics moves humanity forwards and opens huge perspectives for the easing of man's life on Earth. At the same time, all these sciences arm those who love the thought of the destruction of all life on Earth. Physicists cannot but think about these urgent questions, which concern all humanity.<sup>74</sup>

Like Kulikov himself, Romm did not identify those who 'love the thought of the destruction of all life on Earth', leaving open the possibility that the confrontation was not between socialism and capitalism, but between responsible physicists and irresponsible ruling élites. His suggestions provoked the ire of critics who disliked the new, internationalist heroes of science portrayed in Thaw films and continued to rely on the rhetoric of the late 1940s. One conservative critic complained that in the film

....certain young 'intellectuals' continuously pronounce 'super-original' heretical aphorisms of a clearly Western origin. Doing this, they forget that the bourgeois West has not, for a long time, been in a condition to put forward great progressive philosophical ideas.<sup>75</sup>

The author went on to question how the characters could have avoided their compulsory lessons in dialectical materialism, which should have guided them in their debates on the relationship between science and war. It must be said that such critics were very much in the minority. Nonetheless it was clear that *Deviat' Dnei Odnogo Goda* called into question one important Soviet dogma which otherwise remained unchallenged: that socialism employed the universally-valid results of world science for more responsible, humane goals that did capitalism.

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<sup>74</sup> Radio Broadcast, 25th February 1962, 'Nauka i Tekhnika': GARF f.6903/op.12/d.485/l.134-42

<sup>75</sup> Vladimir Orlov, 'Atomy i Liudi' in *Pravda* 20th March 1962, p.4

The officially-sanctioned curiosity about Western science expressed in the media appears to have met with an enthusiastic response from the Soviet population. This can be judged both from ticket sales for the films mentioned above and from the reactions of Soviet citizens to the American National Exhibition, housed in Sokol'niki Park during the summer of 1959. Although the exhibition was generally met with great enthusiasm, many visitors commented that too much attention had been lavished on presenting consumer goods, while there was little focus on achievements in science and technology. One Soviet citizen noted in the visitors' book: 'Is it possible that you think our mental outlook is restricted to everyday living only? There is too little technology. Where is your industry?' Another comment read: 'We expected that the American exhibition would show us something grandiose, something similar to Soviet sputniks... and you Americans want to surprise us with the glitter of your kitchen pans and the fashions which do not appeal to us at all.'<sup>76</sup>

None of this is to suggest that the legacy of the Stalin era was entirely eradicated in popular science media. Although, by the early 1960s, the big screen was dominated by contemporary scientists, the old-style scientific biographies of the 1940s did not disappear entirely, with 1959 seeing the appearance of a biography of Tsiolkovskii, *Chelovek s Planety Zemlia*, and 1961 seeing the release of a biography of the agronomist Mikhail Ivanov, entitled *Akademik iz Askanii*. The distinction between 'Russian' and 'Soviet' scientists continued to be blurred, as was demonstrated when the technologist Correspondent of the Academy of Sciences N.N. Kachalov commented, in a radio programme broadcast in 1959, that '[Sergei] Vavilov was right, saying that the national type of the Russian scientist was determined by Lomonosov. We, Soviet scientists, have inherited these characteristics. We take this baton in our hands and will pass it on to the next generation, which follows us.'<sup>77</sup> While 'Russian science' remained the official forefather of Soviet science, the discussion of independent scientific communities in Ukraine, the Caucasus, the Baltic states, or any other republic of the USSR, remained taboo. A biographical portrayal of the famous Armenian astronomer, Viktor Ambartsumian, broadcast in 1958 had all references to his fame and popularity in his

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<sup>76</sup> Walter L. Hixson, *Parting the Curtain: Propaganda, Culture and the Cold War, 1945-1961* (Macmillan: Basingstoke 1997), p.207; these particular comments in the visitors book may have been the work of Party agitators, but apparently were representative of the opinion of the Soviet public.

<sup>77</sup> Radio Broadcast, 15th September 1959, 'Nashe Dorogi Skhodiastsia': GARF f.6903/op.12/d.394/l.197

native republic excised.<sup>78</sup> The idea of national scientific heritages, other than that of Russia, challenged the dominant narrative of a ‘progressive’ Russian nation around which other more ‘backwards’ peoples had gathered. Russian scientists also retained their exaggerated status in certain media: for instance, of the 46 ‘artistic-scientific’ biographies broadcast on national radio between 1953 and 1964 only two were devoted to foreign scientists, one of which focused on Darwin and one of which related the story of the Curie family.<sup>79</sup>

However, many figures from the pantheon of Russian scientific heroes, which had been developed in the 1940s, did quietly disappear back into obscurity. A book published in 1960, which was runner-up in a competition for the best childrens’ book on science and technology, implicitly acknowledged the priority of the Wright brothers in manned, powered flight and made no mention of Aleksandr Mozhaiskii, who, during the *Zhdanovshchina*, had been credited with pre-empting their invention. Furthermore, filled with photos and diagrams from *American Aviation* and *Aeroplane*, the book made the USA look like the world-leader in aviation technology.<sup>80</sup> Those who had a vested interest in defending the ‘priority’ of Russian scientists did not always accept such changes without comment. The chair of the Popov Society, which was devoted to defending the claims of Aleksandr Popov as the inventor of the radio over Marconi, wrote to the Central Committee in June 1964. He protested against the ‘vulgarisation’ of the history of radio in recent Soviet textbooks and works of popular science, and complained that this was the result of the ‘absence of a generally-recognised system’ for writing such texts. He alleged that such articles were ‘distorting the history of the invention of radio’ and that the ‘issuing of such pseudo-historical materials abroad, mainly in the USA, can be considered one form of the ideological struggle which American imperialism is carrying out against us.’<sup>81</sup> However, there is no sign that any action was taken on this complaint and, although Popov remains the ‘father of radio’ in Russia, the aggressive assertion of his priority over Western scientists continued to fade into the background during the 1960s.

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<sup>78</sup> Radio Broadcast, 29th July 1958, ‘Vydaiushcheisia Uchenyi i Grazhdananin’: GARF f.6903/op.12/d.372/l.333

<sup>79</sup> R.R. Glier, *Radioteatr i Nauka: Iz Opyta Nauchno-Khudozhestvennoi Radiodramaturgii* (Iskusstvo: Moscow 1973), p.56-63

<sup>80</sup> K. Gil’zin, *V Nebe Zavtrashnego Dnia* (Proftekhizdat: Moscow 1960)

<sup>81</sup> V. Siforov to CC CPSU, 26th June 1964: RGANI f.5/op.55/d.87/l.109-111

## ‘THE STAGE FOR A GENERATION’

The way in which scientists were presented in the popular media had been transformed by the early 1960s. Their centrality in the popular culture of the 1960s meant that the image of the scientist assumed greater importance, as a prototype for the future communist man, whose imminent appearance was heralded by the publication of a new, utopian Party Programme in 1961. The Nobel Prize laureate Nikolai Semënov was one of those who was very fond of stating that scientists already lived in communism. He argued that their work was purely intellectual and was inspired by intellectual curiosity, rather than by the need for physical security or, although this was left implicit, the desire to improve the material life of their fellow man.<sup>82</sup> Film reviews regularly repeated the cliché that scientists were the most ‘contemporary’ of heroes, regardless of their age.<sup>83</sup> An article imagining the future world of 1980, as foreseen by the 1961 Party Programme, stated that within two decades every seventh person would describe themselves as a scientist. Scientists would no longer be portrayed in literature as ‘eccentric, disorganised, cut off from life’, for ‘the scientist of 1980 is a harmoniously developed person, finding time for social activities, for the arts, for sport. Yes, even, for sport!’ Furthermore, science in 1980 would be ‘very young’, with doctors of science aged only twenty and academicians aged twenty-five.<sup>84</sup> It is notable that during the 1950s and 1960s scientists, in contrast to Party officials but in common with Soviet military leaders, were rarely parodied in the satirical monthly *Krokodil*. The scientist was presumed to be the paragon of Soviet virtue.

Scientific heroes, as a result of their new role, were increasingly presented not as the paternal authority figures of the early 1950s, but as courageous young men, and occasionally women; as one contemporary author put it, science had become ‘the stage for a generation.’<sup>85</sup> Youth was now to be admired and called upon to support the Party in its struggle not only against the reactionary vestiges of capitalism, but also against the ‘dogmatists’ within the bureaucracy and society at large; this was as true in scientific propaganda as in other areas of Thaw culture. The journal *Znanie - Sila* published a special issue in November 1957, devoted to the work of young scientists who had been born after 1917, and therefore had

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<sup>82</sup> See, for example, his speech to Conference of Ideological Workers, 6-9th September 1960: RGANI f.5/op.33/d.132/l.22

<sup>83</sup> On *Deviat' Dnei Odnogo Goda*, N. Kruzhkov, ‘Ballad o Nashem Sovremennike’ in *Ogonëk* March 1962 (No.12), p.16 and on *Vsë Ostaetsia Liudiam*, A. Polovnikov, ‘Bessmertie Dronova’ in *Literaturnaia Gazeta* 19th October 1963, p.1, ‘Fil'm o Sovremennike’ in *Pravda* 23rd October 1963 p.4

<sup>84</sup> K. Rusanov, ‘1980’ in *Z-S* October 1961 (No.10), pp.47-50

<sup>85</sup> V. Mishnev, *Uchënaia Stepen'* (Gosizdat: Minsk 1963) p.125

known only the reality of Soviet power. Amongst those it focused on were Professor Leonid Brekhovskii, who had defended a 'brilliant doctoral thesis' in acoustics while aged only thirty, and the atomic physicist Dr. V.A. Malikh, who had fought at the front during the Great Patriotic War and belonged to 'the generation of scientists born and growing up after Great October'.<sup>86</sup> Although the loyalty of such scientists to the Soviet state was taken for granted their loyalty to their 'friends' (no longer 'comrades') was also loudly proclaimed. A polemic published in 1962, by Vladimir Parin, a prominent victim of the *Zhdanovshchina*, explicitly linked this rising generation of 'sons' with the struggle against dogmatic 'fathers' and the cult of personality. Parin stated it was no coincidence that the ideological hostility of older scientists to new ideas, such as cybernetics, was 'often combined with distrust towards young scientists' who were instinctive innovators. The author noted that such defensiveness in the face of the rising generation was very strange amongst scientists who had often, in the turbulent years of the 1930s, risen to prominence in scientific research before their thirtieth birthday.<sup>87</sup>

The new wave of films about scientists that emerged in the early 1960s was therefore dominated by stories of the struggle between 'idealistic' young visionaries and cynical or passive 'careerists'.<sup>88</sup> Many of these were adaptations of popular works of Thaw fiction, such as 1963's poorly-received adaptation of a Vasilii Aksënov story, *Moi Mladshiii Brat* or the 1965 adaptation of Daniil Granin's novel *Idu na Grozu*.<sup>89</sup> The young heroes of such films placed the defence of 'truth' above all else, whether it was under threat from the demagogic attacks of Stalinist pseudo-science (Krylov defending cybernetics in *Idu na Grozu*) or from the lapses of conscience committed by their self-promoting colleagues. Viktor, in *Moi Mladshii Brat* refuses to compromise his principles in order to further his scientific career, raging against those who work 'for the sake of a candidate's degree, for money.' Tim, the hot-tempered hero of 1963's *Ulitsa N'iutona, Dom 1*, reacts with fury (and his fists) when he discovers his colleague, and closest friend, Galt'sov, has published their flawed and incomplete findings in the popular science journal *Tekhnika - Molodezh*.

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<sup>86</sup> V.A. Malikh, 'Serdtshe AES' in *Z-S* November 1957 (No.11), pp.2-4, L. Savel'ev, 'Rovesnik Oktiabria' in *Z-S* November 1957 (No.11), pp.10-11

<sup>87</sup> V.V. Parin, 'Avtoritet Faktov' in *Literaturnaia Gazeta* 25th February 1962, pp.2,4

<sup>88</sup> For a brief discussion of science in 1960s cinema, based on the films *Deviat' Dnei Odnogo Goda* and *Chelovek-Amfibiia*, see Josephine Woll, *Real Images: Soviet Cinema and the Thaw* (I.B. Tauris: London 2000), pp.126-133

<sup>89</sup> On the literary origins of these films, see Rosalind J. Marsh, *Soviet Fiction since Stalin: Science, Politics and Literature* (Croom Helm: London 1986), pp.80-2, 85-6, 94-6, 140, 168, 218; *Moi Mladshii Brat* was based on the story 'Zvezdnyi Bilet'.

Rejecting Galt'sov's defence, that all scientific careers are built upon compromises such as those made by Oppenheimer and Heisenberg, Tim retreats to a northern fishing village where, after months of pain-staking work, he finally completes the research. Such films mock false authorities, such as the careerist Academician Denisov in *Idu na Grozu*, who appeals to scientists to focus on 'historic problems' and the 'fate of the country' in a performance which is clearly intended to combine the mannerisms of Hitler and Lysenko.

However, it had to be made clear that not all authorities were false authorities, and therefore it was not just young scientists who were portrayed as struggling against out-dated 'dogma'. Katerina Clark notes that literature of the Khrushchëv era was 'not as radical as the rhetoric suggests' and that positive heroes of the era were still supplied with mentor figures. Protagonists were now faced with a choice between 'false' Stalinist mentors and 'true' Leninist ones, with 'true' mentors often characterised by warmth and kindness rather than a stern demeanour.<sup>90</sup> Nancy Condee has termed the 'true' mentors 'uncles', who united with the 'sons' of the Thaw against their 'fathers'.<sup>91</sup> Those scientists whose work had been overshadowed under Stalin were thus resurrected in the popular media to serve as 'uncles' to the new generation. One example of this is provided by a biography of the agronomist Dmitrii Prianishnikov, published in 1963 and intended to present its subject as a counter-example to Vasilii Vil'iams and his system of crop-rotation, which had recently been denounced by Khrushchëv. The biography noted that normally the 'unconditional and selfless adherence to an ideal' displayed by Vil'iams would be praiseworthy but, given the 'unhealthy situation' created by the cult of the personality, the 'artificially-created authority' of the scientist was 'limitlessly inflated' leading to a 'tragic turn' in Soviet agricultural science. Prianishnikov, by contrast, worked ceaselessly for Soviet power after 1917, but 'the passion for revolutionary phrases, which so captivated admirers of Vil'iams, was alien to him' and he 'avoided the flowery slogans and splendid eulogies which Vil'iams used.'<sup>92</sup> This biography was also used as the basis for a radio play about Prianishnikov, broadcast in February 1964, which effectively dramatised the 'bitter attacks' to which the agronomist was subjected by adherents of the Vil'iams system. One scene portrays a confrontation between Prianishnikov and a

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<sup>90</sup> Katerina Clark, *The Soviet Novel: History as Ritual* (Indiana University Press: Bloomington 2000, 3rd ed.), pp.211-2

<sup>91</sup> Nancy Condee, 'Cultural Codes of the Thaw' in William Taubman, Sergi Khrushchev and Abbott Gleason (eds.) *Nikita Khrushchev* (Yale: New Haven 2000), pp.160-176, here at p.163

<sup>92</sup> Oleg Pizarzhevskii, *Prianishnikov* (Molodaia Gvardiia: Moscow 1963), pp.159, 205

'Stalinist' ideologue who argues that the Vil'iams system 'agrees beautifully with progressive philosophical concepts', to which Prianishnikov replies

You can't only have one land system, applicable everywhere. I don't know what philosophical concepts your crop-rotation system agrees with. It seems to me that one system of field rotation, appropriate for all times and all peoples, is anti-dialectical.<sup>93</sup>

Therefore old 'Stalinist practicalism', which was now presented as pseudoscience wrapped in Marxist rhetoric, was contrasted with 'Khrushchëvian practicalism' that made use of Marxist rhetoric to promote genuine science for practical goals. This distinction was of course wholly arbitrary and based entirely on the personal whims of Khrushchëv himself; such narratives attacked Stalinist heroes, but did so using a distinctively Stalinist line of argument.

Films also worked hard to promote the idea of continuity and generational harmony within the sciences, ensuring that whenever false authority figures were exposed genuine authority figures were on hand to provide guidance. The scientist Viktor, in *Moi Mladshii Brat*, although not representative of the older generation, is an authority figure whom his younger brother, Dimka, eventually learns to imitate. The researcher Gusev, in *Idu na Grozu*, has his youthful enthusiasm and *stikhiinost'* tamed by the worldly Dankevich ('Don't expect any quick results, work patiently. We expect the first results.... In a century.'), who in Rostislav Pliatt's performance bears a striking resemblance to the famously iconoclastic Soviet physicist Lev Landau. The victory of the stubborn Gusev over the red-tape of Soviet bureaucracy and the cynicism of his colleague Tulin can only eventually be assured when a scientific patriarch, Golitsyn, can be convinced of the validity of his research. Nikolai Cherkasov's Academician Dronov, at the centre of the action in 1963's *Vsë Ostatsia Liudiam*, is portrayed as eternally young at heart; he rejects the fawning praise of his colleagues, curses incompetent bureaucrats, takes great joy from his pet fish and plays hopscotch with children in the street. The unbroken link between generations is rendered palpable when Dronov, who is fatally ill, and his worthy disciple Viaz'min, who is exposed as having made a dangerous error in his work,

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<sup>93</sup> Radio Broadcast, 9th February 1964, 'Schast'e Naroda - Prezhde Vsego': GARF f.6903/op.12/d.569/1.23, 28

suffer simultaneous collapses, as if symbiotically linked. Similarly, Romm's famous *Deviat' Dnei Odnogo Goda* sees its positive hero, Gusev, effectively repeat in slow-motion over the course of the film the death of his mentor, Sintsov, from radiation poisoning, as seen in the opening scenes. The only film of this era that lacks a 'genuine' scientific mentor is the 1962 blockbuster *Chelovek-Amfibiia*, based on Andrei Beliaev's science-fiction novel. Here the misguided and tyrannical scientist, Salvator (who is part Stalinist patriarch, part Bond villain) is motivated by utopian dreams of using science to transform mankind's physical and moral nature, but inadvertently renders his adopted, biologically-engineered son incapable of living a meaningful life. However, this was uncharacteristic of films that generally sought to promote continuity, rather than conflict, between generations.

The characteristics ascribed to scientists, and the characteristics that were considered positive, changed dramatically during the late 1950s. While practicality remained important, scientists increasingly came to be portrayed as visionaries and romantic dreamers, far removed from the practical characters of early 1950s propaganda. Slava Gerovitch has noted that during the 'Thaw' historians of science 'turned to what is today termed "internalist" historical narratives as a means of both analysis and self-protection.'<sup>94</sup> Placing the role of individual creativity and genius centre-stage was not only, as Gerovitch indicates, a way of making the history of science 'apolitical', it also resonated widely in a culture which was once again legitimising individual interests and creativity. A broadcast in August 1958 told the story of the chemist Lebedev and his struggle to create a form of artificial rubber in tsarist Russia, despite being persistently turned down for funding by government bureaucracies and enduring the scorn of his colleagues. Sounding like a typical Stalinist laboratory director, his colleague Belokhvostov tells him: 'I'm sorry comrade Lebedev, but you're a utopian, while I am a practical scientist.' Lebedev's work, as a 'dreamer' is however vindicated when Kirov visits his laboratory after the revolution and picks up on his research.<sup>95</sup>

Science was now portrayed as a fundamentally creative act and scientists were often compared with poets, composers and musicians. An article that attempted to identify the defining features of cyberneticists, written in 1964, asked if it was a coincidence that one of those interviewed wrote novels

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<sup>94</sup> Slava Gerovitch, 'Writing History in the Present Tense: Cold War-Era Discursive Strategies of Soviet Historians of Science and Technology' in Christopher Simpson (ed.) *Universities and Empire: Money and Politics in the Social Sciences during the Cold War* (New Press: New York 1998), pp.189-229, here at p.199

<sup>95</sup> Radio Broadcast, 17th August 1958, 'Voploshchenie Mechty': GARF f.6903/op.12/d.372/l.27

while another performed at classical concerts. A third, the famous mathematician Andrei Kolmogorov, argued that already the fields of poetry and cybernetics had become inseparable. The authors concluded that cyberneticists were defined by an 'aspiration to penetrate into every field' and 'cyberneticists, more than any other scientists, must be able to think in an unfettered fashion, without a glance to authorities which seem unshakeable.'<sup>96</sup> These scientists were no longer mere 'servants of the people', but were possessed of personal vision and insight. Interestingly, Vail' and Genis note that in the 1960s the glowing biographies of sporting heroes no longer praised the Stalinist qualities of dedication, discipline and resilience, instead focusing on their willingness to adopt iconoclastic techniques and their moments of personal 'inspiration'; the authors go so far as to describe some sports reporting of the era as a 'very cautiously conducted assassination of collectivism.'<sup>97</sup> Such an interpretation could also be made of the science propaganda of the Thaw.

The early 1960s was the era of the debate between *fiziki i liriki*, when a few, isolated voices argued that scientific progress would render the arts meaningless and superfluous.<sup>98</sup> However, such an argument was overwhelmingly rejected by the majority of scientists and artists, who saw their fields of work entering into creative interaction, rather than drifting apart. Scientists in Soviet films of the 1960s certainly seemed designed to break down any categorical divisions between *fiziki i liriki*. They are no longer clumsy, unworldly 'eccentrics' [*chudaki*] but rather representative of the 'well-rounded individual' all Soviet citizens should aspire to be. The scientific heroes of this period are usually engaged in 'pure science', in a way that would have been considered deeply inappropriate in the Stalin era; although viewers are informed their research is of vital importance to the economy, or defence, of the state, they are never seen getting their hands dirty or meeting representatives of the *narod*. However, several films (*Vsë Ostaetsia Liudiam*, *Idu na Grozu*, *Ulitsa N'iutona*) find their heroes outdoors for much of the time, celebrating their physicality. The clearest example of this is Tim, in *Ulitsa N'iutona*, who is equally adept at calculus, deep-sea fishing and beating up poachers. He keeps a punch-bag in the corner of his hut while he studies, and rather than engaging the treacherous Gal'tsov in debate he douses him with a fire-extinguisher in the middle

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<sup>96</sup> Lev Katolin, 'Nauka Uvlechennykh' in *N&Zh* March 1964 (No.3), pp.104-9

<sup>97</sup> Vail' and Genis, *60-e: Mir Sovetskogo Cheloveka*, pp.209-210

<sup>98</sup> See Marsh, *Soviet Fiction since Stalin*, pp.213-15 for an analysis of the *liriki i fiziki* discussion which describes it, I believe correctly, as a 'false debate'.

of a lecture. However, Tim is also an accomplished artist, covering his hut with Picasso-like murals, and he agrees to meet with Gal'tsov to discuss their work under the Mayakovskii monument in Moscow, rendering the common Thaw analogy of theoretical physics and poetry visible. Dronov, in *V'së Ostaetsia Liudiam*, is a passionate, virtuoso piano-player, and physicists in many of the films of the era are shown to be talented guitar-players and singers.

While it was acceptable for Soviet scientists to appreciate the arts, the fact that they might feel drawn towards 'subversive' artistic trends was of considerable concern. Conservatives were keen to rebut the implication that modern, Soviet scientists should feel any special affinity for modern art, and Western modern art in particular. The artist Il'ia Glazunov, who drew the inspiration for his work largely from classic Russian sources, speaking at one of the gatherings of the creative intelligentsia after the infamous Manezh incident of 1962, argued

One of the most popular, reliable arguments of the defenders of abstract art is the assertion that their art is at the level of contemporary scientific discoveries.... The history of humanity is rich with the greatest scientific discoveries. But, in my opinion, none were so great that they led artists up the dead-end of abstract art. For example, after the discoveries of Copernicus artists did not begin to describe the world as if it were sitting on a spinning carousel.... So the invention of cybernetics does not mean people have acquired a sixth sense.<sup>99</sup>

The identification of scientists with the bards of the 1960s, or with modern art, clearly raised concerns, but it was in their language and their discussions that scientists were portrayed as being the most provocative and potentially subversive. Science, as portrayed in films of the era, is no longer an object of dispassionate study, it can now be expected to provoke arguments at parties, bus-stops and weddings. Tim, in *Ulitsa N'iutona*, passes over his chance to dance with a girl at a party for the sake of a heated debate on science with a passing *stiliaga* ('I spit on him who spits on Planck... Science is an eternal hunger for thought!'). Later, he is willing and able to explain relativistic physics to a curious *militisioner* with the aid of a tennis-ball, after having engaged him in a knock-about game of football. Viktor in *Moi Mladshii Brat* is

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<sup>99</sup> Session of the CC Ideological Commission, 24-26th December 1962: RGANI f.72/op.1/d.3/l.83

also comfortable adopting footballing metaphors when describing his ambitions in science. However, not all scientific heroes are so easily comprehensible to the common man; characters such as Kulikov in *Deviat' Dnei Odnogo Goda* and Tulin in *Idu na Grozu* are openly scornful of 'Neatherthals' and 'primitives' who are incapable of keeping pace with the 'drama of ideas'. Such fundamentally elitist heroes were, unsurprisingly, not to the taste of all critics; one accused Mikhail Romm of striving to create positive heroes who were 'so to speak, "stiliagi" in form but "socialist" in content' creating concern amongst viewers that such 'unstable, fragile, frivolous people were allowed behind the controls of an atomic reactor.'<sup>100</sup> *Ulitsa N'iutona* provoked a similar reaction, a reviewer stating that its heroes 'do not think, but spar with the viewer with high-faluting [*treskuchii*] white-hot aphorisms.'<sup>101</sup> Behind such comments lurked the concern that such 'well-rounded' characters might increasingly be seen as broaching restricted, political subjects.

Restrictions continued to exist on any attempt, in popular works, to attribute to scientists moral, political or even philosophical autonomy. Biographies of prominent Russian scientists had to resolve the problem of why so many of their subjects, who were supposed to be 'progressive' by the very nature of their work, were not drawn to support the Bolsheviks prior to 1917. The opposition of the Russian scientific intelligentsia to tsarism was thus cast in 'worldview' terms, rather than being focused around any political, social or economic issues. Most such biographies featured tales of future scientists shocking their teachers and fellow pupils with childhood essays on atheism, then discovering Darwin and later facing the reactionary influence of the Russian Orthodox Church. Devoid of any interest in social issues, tsarist-era scientists were therefore portrayed as adhering to a naive form of technocracy, which would supposedly allow science to flourish and liberate Russia. This view was critiqued in biographies and it was demonstrated how scientists gradually came to see the flaws in such an ideology and recognise the inherent superiority of Bolshevism. Mikhail Arlazorov's 1959 biography of the mathematician Nikolai Zhukovskii emphasised that its subject obviously 'sympathised' with the struggle of the working classes, but that he remained a mere observer, and that in 1905 he had pondered 'where is Russia going? On such questions, Zhukovskii was as helpless as a child...' However, according to Arlazorov, Zhukovskii welcomed the October Revolution, at which point 'the scales of political blindness, which had prevented him from seeing

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<sup>100</sup> Orlov, 'Atomy i Liudiam', p.4

<sup>101</sup> Viktor Bozhovich, '...V Sisteme Koordinat' in *Iskusstvo Kino* December 1963 (No.12), pp.52-5

the whole world, fell from his eyes.’<sup>102</sup> After this he offered his services to the Bolsheviks without a second thought. Arlazorov’s 1962 biography of Tsiolkovskii presented a similar picture, noting that ‘Tsiolkovskii was far from an understanding of the social picture of the world around him. He dreamt of remaking human society. But, in his opinion, only one thing was necessary for this - to clear the path for geniuses of the human intellect, to enable them to develop to their full potential.’<sup>103</sup> Like Zhukovskii, Tsiolkovskii is presented as having changed his political views after the Bolshevik seizure of power. Such themes, which remained a common thread in many biographies, sought to demonstrate how an entire class, ‘the progressive scientific intelligentsia’, had become aware of the superiority of Bolshevik ideology over autonomous technocracy. This also served as a reminder that even in the Khrushchëv era scientists remained insufficiently morally and politically mature to make policy decisions without the guidance of the Party.

The most potentially troublesome group within the scientific community was the group which, by the early 1960s, had earned a reputation as being the most iconoclastic; the physicists, who, in the atomic age, seemed to have been granted near superhuman powers. The physicist A. Kitaigorodskii, interviewed by *Voprosy Literaturny* in 1964, stated that ‘the primary characteristic of physicists is the absence of conformity.’<sup>104</sup> It is certainly true that the defining characteristics of this new generation of physicists were held to be a healthy sense of (often satirical) humour and an innate suspicion of authority figures. Two authors writing in 1961, on the occasion of the visit of Niels Bohr (‘the patriarch of contemporary physics’) to Dubna, reported on the informal atmosphere that reigned and the friendly jibes that were exchanged between theorists and experimentalists. They noted that Planck and Einstein’s conversations had been full of elegant humour and stated that ‘love of wit, jokes and even pranks is characteristic, in our opinion, of all the greatest physicists of our time, Kapitsa and Landau being good examples.’ Bohr was later quoted as saying: ‘I have said, and I’d like to underline it again, that humour plays a great help to our work, that traditional style of humour of our generation of physicists, which allows us to relate to authority with curiosity, but without admiration.’ Pëtr Kapitsa was also quoted, urging young physicists to ‘choose your

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<sup>102</sup> M. Arlazorov, *Zhukovskii* (Molodaia Gvardiia: Moscow 1959), pp.157, 162, 245

<sup>103</sup> M. Arlazorov, *Tsiolkovskii* (Molodaia Gvardiia: Moscow 1962), pp.191

<sup>104</sup> A. Kitaigorodskii, ‘Neskol’ko Myslei Fizika ob Iskusstve’ in *Voprosy Literaturny* August 1964 (No.8), p.84

own “boss” in science.’<sup>105</sup> The popular science writer Daniil Danin echoed this feeling, recounting a meeting between Werner Heisenberg and Fok at a 1959 conference in Kiev, when he stated that ‘the disagreements between them didn’t hinder them enjoying the fruits of the Earth together with great success.... I saw for myself that philosophical agreements don’t stop physicists from getting down to business.’<sup>106</sup> It was not only the content of such articles which conveyed a sense of human warmth, but their style, which often gave the sense that friendly conversations over a bottle of vodka were being reported verbatim, giving readers a genuine insight into the life of scientists.

The archetypal figure amongst these physicists, and the hero for a generation of young Soviet scientists, was undoubtedly Lev Landau. Landau was portrayed by Danin as a mystic, relating truths received from on high; he quotes Landau as telling his students to ‘cast off your imagination, realise what it is beyond your ability to imagine.’<sup>107</sup> Propagandists were faced with a dilemma when Landau, a noted ‘anti-Soviet’ element and a leading ‘Zionist’ in the physics community, was awarded the Nobel Prize for Physics in 1962. He had been put forward not by the Soviet bureaucracy, but on the recommendation of his mentor, Niels Bohr, who had already put him forward for the prize jointly with Pëtr Kapitsa in 1956 and 1960.<sup>108</sup> A radio broadcast devoted to Landau, in recognition of this achievement, did emphasise his somewhat erratic nature as a child and his wide travels abroad before the war, but the description of him as ‘one of the greatest theoretical physicists on the planet’ was altered to ‘one of the greatest Soviet theoretical physicists.’ Although it appeared to be acceptable that no lip-service was paid to the influence of other Soviet physicists, or indeed dialectical materialism, on his thought, still his gratitude to his teacher, Bohr, was censored, as was the fact that he had been ‘awarded an International Rockefeller grant, awarded only to especially gifted people.’ It was noted that he had a ‘University at Home’ and was surrounded by people who admired him because ‘he himself really loves people, is always responsive and as transparent as crystal.’ He was described as having an instinctive hatred of ‘falsehood’, so strong that he had to leave a theatre in which the acting was not up to scratch, and it was therefore claimed that he disliked abstract art (which was not true). It was considered acceptable to state Landau was the ‘conscience of Soviet physics’

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<sup>105</sup> K. Levitin and A. Melamed, ‘Tak Rozhdalas’ Kvantovaia Fizika’ in *N&Zh* August 1961 (No.8), pp.74-9

<sup>106</sup> D. Danin, *Neizbezhnost’ Strannogo Mira* (Molodaia Gvardiia: Moscow 1961), p.347

<sup>107</sup> D. Danin, ‘Cherty Issledovatel’ia’ in *Perekrestok: Pisatel’ i Nauka* (Sovetskaia Pisatel’: Moscow 1974), p.180

<sup>108</sup> Blokh, *Sovetskii Soiuz v Inter’ere Nobelevskikh Premii*, pp.326-7

but the following statement was cut, presumably as it raised the dangerous spectre of him as a dissident: 'Hatred of force applied to the human personality, deep respect for the individual run through his whole life. No suppression. No pressure. Man must be entirely free.'<sup>109</sup> This broadcast showed the limits which had to be respected in such propaganda; to claim Landau was an ardent supporter of the Soviet regime was obviously too blatant a lie to be broadcast, but recognition of the qualities that regularly led him to confront the Soviet authorities had to be avoided. However, this remained a very atypical broadcast; unlike virtually all other propaganda biographies it made no attempt to contextualise the Soviet scientific hero in terms of class, nation, Party affiliation or ideology, instead presenting him in entirely personal terms. It must also be acknowledged that, being broadcast while Landau was recovering from the crippling car accident that was to effectively end his career, the Soviet authorities may no longer have regarded the brilliant physicist as an effective critic of the regime.

Concerns about the increasing moral, aesthetic and, potentially, political autonomy of Soviet scientists were no longer prompted by fear that they might be used as a conduit for foreign subversion, as in the 1940s. The primary threat to science was no longer seen to come from without, but from within: it was the personal lives of heroes which now threatened to undermine the progress of science, not the lure of the dollar. The 'cynics' of Thaw films do not surrender to Western influences, but to their own desire for security, domesticity and the easy life; in other words the threat is that eternal enemy of the intelligentsia, 'petit-bourgeois mentality' [*meshchanstvo*]. The justification of the careerist Morozov in *Vsë Ostaetsia Liudiam* is that he is an 'ordinary man' and that all he wishes to do is secure a cosy future for himself and his wife. She, a true Soviet citizen, spurns him when she hears this defence. This scene is, however, usually reversed, with women representing the personal sphere that will draw scientists (inevitably men) away from their scientific 'calling' and their patriotic duty. *Vsë Ostaetsia Liudiam*, *Ulitsa N'iutona* and *Idu na Grozu* all feature women who fail to understand the hero's commitment to science, demanding their valuable time and attention. Tulin's temporary fall from grace at the end of *Idu na Grozu* is sign-posted by the fact he spends the second half of the film continuously flirting, unlike the diligent Krylov, who has sacrificed his love in the name of science. Even when women appear as scientists they are unreliable and capricious, there

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<sup>109</sup> Radio Broadcast, 24th February 1963, 'Gordost' Sovetskii Nauki': GARF f.6903/op.12/f.529/l.1-3, 7-8; this script includes the only reference I have ever found in propaganda of this era to the pre-war funding of Soviet science by foreign philanthropists, on which see Kojevnikov *Stalin's Great Science*, pp.80-5.

to lead the male scientists astray rather than to make a contribution to research. Rumiantseva, in *Isë Ostaetsia Liudiam*, who almost drives the hero, Viaz'min, to suicide, eventually earns the respect of Academician Dronov, but he adds 'only as a scientist. But that's not enough.' This tendency finds its most extreme form in *Deviat' Dnei Odnogo Goda* where, during the famous restaurant debate between Gusev and Kulikov on the relationship between science and militarism, Lilia does not participate but loses herself in an internal monologue devoted to her own love-life. The film's narrator relegates the personal life of the characters to a side-show in the 'drama of ideas', noting that of the nine days presented to the audience, the third, Gusev and Lilia's wedding, is the day 'that nothing was decisively resolved.' Although Lilia herself works at the research institute where the drama unfolds, one critic noted damningly that 'she is entirely indifferent to physics, and is only with Gusev and Kulikov because she is beautiful - you find such people around science, around literature.'<sup>110</sup> The message of such films seems clear. The personal sphere is the greatest threat to the pursuit of scientific truth: friendships must be cast aside either temporarily (as in *Iduna Grozu*) or permanently (as in *Ulitsa N'iutona*) when they interfere with work, and demanding women are best avoided entirely.

Before concluding this chapter, it must be emphasised that in some areas there remained a degree of continuity between the 1940s and the Khrushchëv era. Much propaganda continued to focus on the past glories of Russian science, often in a distinctly parochial tone. R.R. Glier commented, as late as the early 1970s, on the biographical dramas he produced for Soviet radio

Unfortunately a living person has never been the hero of a scientific-artistic work. This tradition really limits the possibility of showing the creativity of today's scientists, constructors and inventors; thus propaganda of the most topical directions in scientific and technical thought inflicts great harm upon itself.<sup>111</sup>

The iconoclastic physicists and cyberneticists of the 1960s therefore co-existed alongside other, older representative of science. There were also, even in the 1960s, occasional reminders of the prosaic side

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<sup>110</sup> Anatolii Agranovskii, 'Deviat' Umnykh Dnei' in *Izvestiia*, 7th March 1962, p.4

<sup>111</sup> R.R. Glier, *Radioteatr i Nauka*, p.18

of science, emphasising what an exacting career a scientist chose and reminding readers that not every member of a socialist, or even communist society, could aspire to participate in scientific research. A broadcast on the award of the Lenin Prize to the physicist A.P. Aleksandrov in 1963 stated: 'The path to science is bold, yet strict. There are many victories, but many more disappointments. Discoveries don't happen all the time.'<sup>112</sup> The most vivid fictional illustration of this was in *Deviat' Dnei Odnogo Goda*, where the positive hero Gusev is cursed to die a lingering death by radiation poisoning, without even receiving the consolation of the theoretical breakthrough of which he has dreamed. A 1962 article for *Znanie - Sila* imagined the world of 1980, as predicted in the new Programme of the CPSU, and described a world of Martian expeditions, protein synthesis and 'atomobiles' [*atomokhody*]. However, 'interviewing' a man who had written of his aspirations to be a cosmonaut in 1961, the magazine found he was now occupied as a mere lathe-operator, who stated stoically: 'Life turns out differently to how you imagine. But I've flown to the Moon twice, to construct automatic machinery for the plastics industry.'<sup>113</sup> Even as young viewers and readers were being encouraged to believe in communism in their lifetime, they were occasionally reminded that personal disappointments might still await them.

## CONCLUSION

It is often stated that the late 1950s and early 1960s saw the re-emergence of a boldly utopian vision of communist society in Soviet ideology, rhetoric and iconography, and the advancement of Soviet science is often mentioned in this context. It is certainly true that the exaggeration of past Russian scientific achievements, especially those of the pre-revolutionary era, came to play a less significant role in popular discourse. It was now widely accepted that capitalist scientists and socialist scientists were part of a universal community, although socialism used science in a more responsible and humane fashion than did capitalism, and would therefore increasingly outstrip it. The image of the patriotic, paternalistic 'humble servant of the people' cultivated by the *Zhdanovshchina* never disappeared from the media, but it did now exist alongside a new stereotype, the 'poet of science', the 'seeker of truth', young, vigorous, witty,

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<sup>112</sup> Radio Broadcast, 13th February 1963: 'Na Perednem Krae Nauki': GARF f.6903/op.12/d.529/l.5

<sup>113</sup> K. Rusanov '1980' in *Z-S* October 1962 (No.10), pp.13-6

cosmopolitan, fun-loving and iconoclastic. Scientists of this new generation were unmistakably the product of socialist Soviet society, but they were no longer defined solely by their relationship to the state and the *narod*; they were equally at home in a laboratory, at a gala concert, playing volleyball with friends or at a scientific conference in Paris or New York. The portrayal of such role-models was part of a broader trend in the public culture of the Thaw and gave popular scientific propaganda renewed appeal for the generation of Soviet citizens who had grown up after the Great Patriotic War. However, these new scientific role-models were still not entirely unfettered, Promethean figures. It continued to be emphasised that even the most brilliant scientists required moral and political guidance from the Party, and narratives that contradicted or undermined this conservative point of view were rare and controversial. While narratives of the scientific 'search for truth' presented an implicit challenge to the authoritarian realities of the Soviet Union, they had secured their place in the popular media by the early 1960s, and 'fathers' and 'sons' would continue to co-exist uneasily in scientific propaganda for some time after 1964.

### CHAPTER THREE: SCIENCE AND THE ANTI-RELIGION CAMPAIGNS

It was one of the central tenets of Bolshevik ideology that the inhabitants of the future communist utopia would all develop a scientific, materialistic worldview. Religion, along with other such atavistic ‘vestiges of the past’ as alcoholism and sexism, would be cast aside during the process of constructing communism. However, while the victory of a scientific worldview was teleologically inevitable, this did not mean that communists and members of the scientific intelligentsia could relax their vigilance, but that they must continually struggle to educate the people via ‘scientific-atheistic’ propaganda. It was assumed that all scientific progress would, by its very nature, undermine the credibility of religious dogma, and that religion was the product of ignorance, rather than of conscious moral choice. Therefore, the more the population knew about science the less inclined they would be to adhere to religious belief. Such assumptions were occasionally called into question, especially as ‘scientific-atheism’ increasingly became a topic of discussion in the early 1960s, but nonetheless they provided the conceptual under-pinning for those who sought to combat religion within the USSR.

Admittedly, the natural sciences did not possess a monopoly in this process of education. The Soviet term *nauchno-ateisticheskaia propaganda*, usually translated as ‘scientific-atheism’ should probably be more accurately rendered as ‘scholarly atheism’: what Soviet propagandists claimed distinguished it from the traditional anti-clericalism of the Russian radical intelligentsia was that it was grounded in Marxist thought and recognised the class essence of religious institutions. Therefore ‘scientific-atheism’ not only encompassed chemistry, physics and biology but also church history, literature and partisan biblical criticism. However, natural science had always played a prominent part in ‘scientific-atheism’ and it is notable that during the late 1950s and the 1960s, when science played such a prominent role in Soviet public discourse, the term ‘natural science-atheistic propaganda’ [*estestvenno-ateisticheskaia propaganda*] was widely used, emphasising the key role that many propagandists believed scientific progress and understanding had in the battle against religion and superstition.

The historiography of the anti-religion campaigns conducted under Khrushchëv was, until recently, relatively undeveloped, and a variety of opinions existed regarding the motivation for the 1954 and 1958-64

campaigns and even who initiated them.<sup>1</sup> The campaigns are still often side-lined in general histories of the period, especially by authors who are generally favourable to Khrushchëv, probably because the situation with regard to religion is difficult to reconcile with a narrative of 'liberalisation' and 'Thaw'. This is despite the fact that religious freedoms probably mattered far more to the general population than the increased artistic freedoms that continue to receive so much attention. Western commentators of the 1960s and 1970s who analysed the anti-religion campaigns tended to see them as an 'aberration', and as an attempt by Khrushchëv to demonstrate his Marxist orthodoxy as the Sino-Soviet split widened, rather than characteristic of 'Khrushchëvism' itself. However, such explanations failed to take account of the stifled 1954 anti-religion campaign, initiated at a time when Khrushchëv was clearly perceived as a leading 'orthodox Leninist' in the Presidium, as well as Khrushchëv's well-known hostility to organised religion, dating from his early childhood and predating his interest in Marxism.<sup>2</sup>

This chapter does not attempt to provide a comprehensive history of the anti-religion campaigns that occurred during Khrushchëv's period in power. However, it demonstrates how the Party's approach to combating religion via means of propaganda changed subtly from November 1954, and how science was intended to play a greater role in this new, less confrontational approach. It provides evidence of the confusion and discontent this new approach caused amongst propagandists and public scientific opinion (career scientists, as well as scientifically-literate professionals such as science teachers). It details the particular problems that arose in producing truly scientific-atheistic propaganda, and the eventual failure of these efforts, which had become widely apparent by the late 1950s. Finally, it examines the fundamental reasons why scientific propaganda proved such an ineffective tool when directed against organised religion,

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<sup>1</sup> Dmitry Pospelovsky, *A History of Soviet Atheism in Theory and Practice, and the Believer* (St. Vladimir's Press: 1987) Vol.2, pp.121-2 and William van den Bercken, *Ideology and Atheism in the Soviet Union* (Mouton de Gruyten: 1988) pp.110-1 identified Khrushchëv as the initiator of the 1954 anti-religion campaign and a hard-liner on religious issues. Joan Delaney Grossman, 'Khrushchev's Anti-Religion Policy and the Campaign of 1954' in *Soviet Studies* Vol.24, No.3 (1973), pp.374-386 and Donald A. Lowrie and William C. Fletcher, 'Khrushchev's Religious Policy 1959-1964' in Richard H. Marshall et. al. (eds.) *Aspects of Religion in the Soviet Union* (University of Chicago: 1971), pp.131-57, argued that Khrushchëv was a liberal who brought the 1954 campaign to an end of his own volition. The evidence presented by M. Shkarovskii in *Russkaia Pravoslavnaia Tserkov' i Sovetskoe Gosudarstvo v 1943-1964 Godakh: Ot 'Peremiriia' k Novoi Voine* (DEAN + ADIA-M: St. Petersburg 1995) has demonstrated conclusively that the former interpretation is correct.

<sup>2</sup> For instance, John Lawrence, 'Soviet Policy towards the Russian Churches' in *Soviet Studies* Vol.16, No.3 (January 1965), pp.276-284, makes no comment on the 1954 anti-religion campaign and attributes the campaign beginning in 1959 to the Sino-Soviet split.

reasons which could not be admitted by propagandists without challenging fundamental ideological principles.

#### **1953-4: SHORTCOMINGS IN SCIENTIFIC-ATHEISM**

The anti-religious campaign that flared up unexpectedly in the summer of 1954, and was stifled just as suddenly in November of the same year, has previously attracted little attention even from historians of religious persecution in the USSR. Those who attributed Khrushchëv's later 1958-64 campaign against religion to his desire to present himself as ideologically orthodox before the Chinese and Presidium hard-liners have difficulty in explaining the 1954 campaign. Meanwhile those who claimed that it may have been initiated on Malenkov's orders failed to present any convincing proof to substantiate their arguments. I would argue that the 1954 anti-religion campaign needs to be seen in the context of the dramatic increase in attention paid by the Party to rural affairs following the September 1953 plenum on agriculture. The campaign was therefore not an isolated aberration within the Thaw, but needs to be seen as part of the change in economic priorities after Stalin's death.

A report prepared by Agitprop for Khrushchëv following the September Plenum of 1953, and presented in the spring of 1954, reported a 'relaxation of attention' to religious issues by the CPSU, despite the fact that the church's influence on 'backwards sections of the population' had 'grown significantly' since the end of the Great Patriotic War. However, rather than focusing on the potential threat to Soviet security posed by the survival of religious communities, the report instead drew attention to economic issues, stating 'religion propagates a slave morality about the need to stop worrying about earthly concerns and the Church draws [believers] from active participation in economic and cultural construction.' The economic development of rural areas was also threatened by the presence of enduring rituals in peasant life, such as the observance of religious holidays and feasts and the mass slaughter of cattle for sacrificial purposes in Central Asia. The report also drew attention to the growing activity of the churches since the end of the war, arguing that the situation regarding lecture propaganda in rural areas was worsening rather than improving. Lectures were heard 'mainly by the progressive part of the population', by which meant the rural intelligentsia, who were already assumed to be free of the influence of the church. The report noted

that anti-religious films had not been translated into non-Russian languages and that major journals like *Kommunist*, *Voprosy Filosofii* and *Novii Mir*, as well as the central newspapers, had avoided carrying atheist articles since the end of the war.<sup>3</sup> This report made it clear that the continuing influence of religion in rural areas would act as a major hindrance for Khrushchëv's plans to modernise the Soviet Union's stagnant agricultural sector, inspire the rural workforce and integrate the rural population into the broader political community.

This report was supported by similar evidence about the poor state of propaganda arriving at the Central Committee in late 1953 and early 1954. Immediately prior to the anti-religion campaign, the Ministry of State Control carried out an assessment of the provision for propaganda in rural areas, focusing on the Estonian, Tadzhik, Ukrainian and Moldovian SSRs; this report noted that the authorities 'carry out insufficient propaganda of the natural sciences and progressive experience in *kolkhoz* production'. The Ministry of Culture's Directorate for Cultural-Enlightenment Establishments was criticised for failing to meet its responsibilities. Chernigov Oblast' was picked out for having only one library and one club between its 65 MTSs; of its 1702 population points, 581 had no public enlightenment establishment of any kind.<sup>4</sup> A report prepared in late 1953 by 'Znanie' especially emphasised the poor provision for scientific-atheistic propaganda across the USSR; the report noted that the society had read 44,928 scientific-atheist lectures during 1952, but had only managed to read 7,392 during the first three months of 1953. The number of scientific-atheistic and scientific pamphlets the society was issuing had supposedly been declining ever since the society had been founded in 1947.<sup>5</sup> However this report did not acknowledge that the main reason for the decline in lectures was the recurrent *kampaneishchina* forced upon the society by events. During early 1953 the society had had no choice but to devote the majority of its time to espousing the achievements of the Nineteenth Party Congress, trumpeting Stalin's 'masterpiece' *Economic Problems of Socialism* and then mourning the death of the *vozhd'* himself in early March.

Despite the growing realisation after September 1953 of how weak Party influence was in the countryside, and how inadequate its propaganda institutions were, the issue of scientific-atheistic propaganda was not a major focus of attention at the Second Congress of 'Znanie', which met in the Hall of

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<sup>3</sup> Kruzshkov and Rumiantsev to Khrushchëv, 7th March 1954: RGANI f.5/op.16/d.642/l.12-24

<sup>4</sup> V. Zhavoronkov to CC CPSU, 23rd June 1954: RGANI f.5/op.16/d.664/l.3-17

<sup>5</sup> Silant'ev to Pospelov, 3rd August 1953: GARF f.9547/op.1/d.778a/l.171-5

Columns of the Moscow House of Trade Unions in April 1954. Delivering the key-note speech, the Society's deputy chairman, Ivan Laptev, one of those who had assisted Khrushchëv in drawing up the documents for the September Plenum, did warn that some propagandists were interpreting the 1944 Central Committee Resolution 'On the Organisation of Scientific-Enlightenment Propaganda' (the last significant proclamation on the issue) in too liberal a fashion. However, this was largely an aside, and the theme was not seriously taken up by any of the other speakers at the conference; no one gave any indication that they were aware a major campaign against religion was about to be launched by the Party leadership.<sup>6</sup>

However, soon after the congress, scientific-atheism did become a major issue at meetings of section leaders within 'Znanie'. N.P. Silant'ev, the society's deputy chairman, who took responsibility for scientific-atheism throughout 1954-5, stated at one meeting in early May: 'Scientific-atheistic propaganda is one of the most acute and immediate tasks carried out by the Party in the communist education of the people. But it is impossible to really organise this propaganda without attracting biologists, chemists, philosophers, physicists and astronomers.' He was foreshadowing the approach the society's Presidium was to try to impose throughout 1954-5: less combative anti-clericalism and biblical criticism, and greater attention to scientific education and laying the foundations of a materialist worldview. However, Aleksei Gagarin, head of the society's atheism section, which was directly responsible for preparing model lecture texts, reviewing pamphlets and vetting lecturers, opposed this argument. He represented the views of many who had moved directly from the League of the Militant Godless to 'Znanie' when the former organisation had been abolished.<sup>7</sup> Gagarin refused to acknowledge that his propagandists should change their approach, and argued that anti-religious propaganda had only declined in recent years because the situation in the USSR with regard to religion had become complicated by 'the presence of religious organisations in the Soviet Union which have political relations with the Soviet government on questions of external politics i.e. the struggle for peace'. Instead of agreeing that his writers and lecturers should adopt a more scientific basis in their work he criticised the scientific sections of the society for failing to take a militant ideological position in their publications: 'Comrades, I think that amongst some members of the Society an incorrect

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<sup>6</sup> Speech of Laptev to the Second 'Znanie' Congress, 2nd April 1954: GARF f.9547op.1/d.989/l.4-70

<sup>7</sup> The League of the Militant Godless had effectively ceased to function by the late-1930s but was only officially abolished in 1947, by the same decree which established 'Znanie'.

view holds sway, that we have the social base and the victory of the materialist worldview is secured. However we must not forget the relative autonomy of ideology....’<sup>8</sup>

The argument continued at a second meeting at the end of June, with the hard-liner Gagarin continuing to shift blame from his own section, arguing it was ‘Utopian socialism’ to expect ‘Znanie’ to convert the country to atheism, when the Party’s own relationship to the churches had been ambivalent since Stalin’s concessions of 1943.<sup>9</sup> He again argued that all science lectures should develop a militantly atheistic tone, to which the Society’s president, the biochemist Aleksandr Oparin responded: ‘But if you have a good lecture on astronomy, a good lecture on biology, with correct, literate exposition, within a materialistic framework, then the lecture, even if it is not directly connected to anti-religious tasks, will play its role.’ However, Gagarin continued to attack those who made concessions to religion, telling the story of a young atheist who had been confused by seeing photos of Oparin alongside Patriarchal spokesman Metropolitan Nikolai at a peace conference, as well as photos of Nikolai in the company of Aleksandr Nesmianov, President of the Academy of Sciences:

I think a pamphlet by Aleksandr Ivanovich [Oparin] or Nesmianov, where they explained how they became Marxist-Leninists and cast off religious prejudices would be very useful. Then people would see that political contact with the President of the All-Union Society for the Dissemination of Political and Scientific Knowledge, or the President of the Academy of Sciences, does not signify a reconciliation of ideological opposites.<sup>10</sup>

These arguments already demonstrated the contrasting views that existed within the leadership of ‘Znanie’. The society’s leadership, like Agitprop and the Presidium of the CPSU, saw the task at hand as integrating the religious rural population into Soviet society and encouraging economic development, without exacerbating social tensions at a time of continuing political uncertainty. Their emphasis was on education and improving the morale of the peasantry, by convincing them that they could take charge of

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<sup>8</sup> ‘Znanie’ Section Leaders Meeting, 18th May 1954: GARF f.9547/op.1/d.1011/l.6-15, 38-46

<sup>9</sup> On the dissatisfaction of anti-religious propagandists with the war-time concessions to the Russian Orthodox Church, see Daniel Peris, “‘God is Now on Our Side’: The Religious Revival on Unoccupied Soviet Territory during World War II’ in *Kritika* Vol.1, No.1 (Winter 2000), pp.97-118, here at p.118

<sup>10</sup> ‘Znanie’ Presidium Meeting, 29th June 1954: GARF f.9547/op.1/d.1000/l.128-218

their own fate through education and that the Party was concerned for their welfare. Atheist propagandists, on the other hand, many of whom still cherished the memories of unrestrained attacks on the churches in the 1930s, continued to see a world of diametrically opposed and hostile ideological opposites, in which the only approach was confrontation.

While debate continued within 'Znanie' and reports arrived in the Central Committee about a general lack of ideological vigilance in the countryside, a further impetus towards radicalisation emerged from within the Soviet ideological establishment. Archival documents appear to support the suggestion of M.V. Shkarovskii that Vladimir Bonch-Bruevich, an aged Old Bolshevik and experienced anti-religious activist, may have played a crucial role in initiating the 1954 anti-religion campaign.<sup>11</sup> Bonch-Bruevich was Director of Leningrad's Museum of the History of Religion and Atheism, but continued to resent the fact his Sector of Religion and Atheism, based at the Institute of History in Moscow, had been dissolved by order of the Academy of Sciences on 20th March 1953. Despite an appeal to Khrushchëv to prevent this closure, the Central Committee of the CPSU, on the advice of its Sector Head for Science and Culture, Aleksei Rumiantsev, and one of its secretaries, Pëtr Pospelov, supported the Academy's decision.<sup>12</sup> However, Bonch-Bruevich refused to concede defeat, meeting with Pospelov on 24th June 1954 and convincing him to approve the reopening of the sector.<sup>13</sup> He also bombarded Khrushchëv, Pospelov, Rumiantsev, Malenkov, Mikoyan and Voroshilov with a series of recommendations for improving anti-religious propaganda and urging 'the most wide study of these questions.'<sup>14</sup> Thanks to his persistence, Bonch-Bruevich later reported, 'they decreed first, to approve everything, and second, that it was necessary to start work. They phoned me; when could I come? I said, this evening....'<sup>15</sup> Therefore, Bonch-Bruevich's decision to once again take his academic dispute at the Institute of History before the Central Committee, at a time when atheist propaganda had returned to the agenda, may have provided the crucial turning point in the weeks before the campaign began.

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<sup>11</sup> The suggestion is made by Shkarovskii, *Russkaia Pravoslavnaia Tserkov'* p.50. These archival documents seem to refute the theory of Pospelovsky that the campaign was initiated by hardliners and that the 'moderate' Bonch-Bruevich played a role in stopping it; see *A History of Soviet Atheism* p.73.

<sup>12</sup> Bonch-Bruevich to Khrushchëv, 5th April 1953, in Felix Corley, *Religion in the Soviet Union: An Archival Reader* (Macmillan: Basingstoke 1996) pp.186-8

<sup>13</sup> Bonch-Bruevich to Topchiev, 22nd September 1954: ARAN f.498/op.1/d.2/l.11

<sup>14</sup> Bonch-Bruevich to Nesmianov, 28th June 1954: ARAN f.498/op.1/d.2/l.1

<sup>15</sup> Commission Meeting of 18th November 1954: ARAN f.498/op.1/d.4/l.12

## THE 1954 ANTI-RELIGION CAMPAIGN

The 1954 anti-religious campaign was initiated by a secret decree accepted by the CPSU Central Committee on 7th July 1954. This decree did not distinguish between 'natural science [*estestvennonauchnye*] propaganda' and atheistic propaganda and called upon a number of organisations, including 'Znanie', to widen their use of 'natural science propaganda', especially in rural areas where religion remained widespread.<sup>16</sup> The campaign was only publicly initiated in *Pravda* on 24th July, in an editorial entitled 'Widen Propaganda of Scientific-Atheistic Propaganda' which remarked that while many propagandists respected the right to freedom of conscience granted to believers under the Constitution of 1936, they had forgotten that there was also a legitimate right to engage in anti-religious propaganda and that 'the enlightenment of the workers, through scientific-atheistic propaganda, is a duty.' It blamed propagandists, Party activists, 'Znanie' and the Ministry of Culture for a 'passive' and 'neutral' stance on religion, and urged greater attention to consistent propaganda, reliant on natural science. This article was followed by similar calls to action in the central press over the next three and a half months, often accompanied by lurid descriptions of the dangers into which religion could lure the unwary.<sup>17</sup>

What follows appears to have been a largely undisciplined and uncoordinated offensive on the organised churches without guidance from the central authorities. Studies of anti-religion measures in the 1930s by Arto Luukkanen and Daniel Peris have demonstrated that the League of the Militant Godless and the government bureaucracy played little direct part in religious persecution, which was usually orchestrated by local Party secretaries, who relied on inferences in the mass media, rather than direct orders, when making decisions.<sup>18</sup> This seems to have been what occurred once again in the summer of 1954, as the most militant *antireligiozniki* of the 1930s emerged to do battle, spurred on by frenzied articles in the central

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<sup>16</sup> 'O Krupnykh Nedostatkakh v Nauchno-Ateisticheskoi Propagande i Merakh ee Uluchsheniia' in *Voprosy Ideologicheskoi Raboty* (Gospolizdat: Moscow 1961), pp.61-5. Tatiana A. Chumachenko incorrectly claims that the decree was published in *Pravda* in 1954, when in fact it was only made public in 1961; see *Church and State in Soviet Russia: Russian Orthodoxy from World War II to the Khrushchev Years* (M.E. Sharpe: New York 2002), p.128.

<sup>17</sup> 'Shire Razvernut' Nauchno-Ateisticheskuiu Propagandu' in *Pravda*, 24th July 1954, p.1

<sup>18</sup> See Arto Luukanen, *The Party of Unbelief: The Religious Policy of the Bolshevik Party 1917-1929* (SHS: Helsinki 1994) and *The Religious Policy of the Stalinist State, a Case Study: The Central Committee on Religious Questions* (SHS: Helsinki 1997), Daniel Peris, *Storming the Heavens: The Soviet League of the Militant Godless* (Cornell University Press 1998)

press. The bodies that officially guided propaganda, by contrast, took several months to react to the new call to action from above.

The Collegium of the Ministry of Culture did not meet until late August, dutifully noted the lack of a 'militant character' in its publications, and approved a series of joint seminars with 'Znanie' on religious propaganda, as well as productions of a number of anti-clerical films and plays, including an edited version of Arthur Miller's *The Crucible*.<sup>19</sup> However, it was not until mid-November that the first of its planned radio broadcasts on the conflict of science and religion was transmitted; predictably enough it was a lecture by 'Znanie's' chairman, Aleksandr Oparin, on the origin of life.<sup>20</sup> The central bodies of the Ministry of Education and 'Znanie' demonstrated a similar lag in organising suitable measures, and it appears official measures were only beginning to be approved by mid-September. The Komsomol eventually joined in with a decree issued on 14th October, criticising its own organisation in Orlovskii Oblast', and particularly noting that on the Voroshilov, Pobeda and Stalin *kolkhozi* large numbers of peasants had participated in prayers for good rains.<sup>21</sup>

However, just when it appeared that the anti-religious campaign was beginning to come under institutionalised direction, *Pravda* issued a decree in Khrushchëv's name on 11th November, entitled 'On Mistakes in the Conduct of Scientific-Atheistic Propaganda Amongst the Population'. The correct way to interpret the decree was then elucidated in the following month's *Partiinaia Zhizn'* in the article 'Overcoming Mistakes in Conducting Scientific-Atheistic Propaganda'. The decree, while restating many of the basic principles of the decree of 7th July 1954 word-for-word, criticised those who had engaged in 'insulting attacks on the clergy and believers, banning religious rites', activities which were condemned as 'administrative intervention.' The decree urged that scientific-atheistic propaganda should be more diligent, with more careful selection of lecturing and propaganda cadres, and a less 'ignorant' approach to science. It emphasised the 'loyal position in relation to the Soviet government' of believers and the official church hierarchy, and urged that instead of attacking these people they should be educated through the use of 'astronomy, biology, physiology, physics, chemistry and other sciences'. This decree, which was to remain

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<sup>19</sup> S. Kaftanov to CC CPSU, 4th September 1954: RGANI f.5/op.16/d.664/l.41-8

<sup>20</sup> Radio Broadcast, 13th November 1954, 'Proiskhozhdenie Zhizni na Zemle': GARF f.6903/op.12/d.250/l.108-117

<sup>21</sup> Valerii Alekseev, *'Shturm Nebes' Otmeniaetsia?: Kriticheskie Ocherki po Istorii Borb'y s Religiei v SSSR* (Rossiia Molodaia: Moscow 1992), p.212

the official touchstone on scientific-atheistic propaganda for years to come, clearly demonstrated that an educative rather than a combative approach to anti-religious propaganda was to be taken in the immediate future.<sup>22</sup> It should be noted that the focus on both scientific evidence and the 'feeling of believers' had been present in the original July decree, and that this intervention indicated as much a belated attempt to rein in a chaotic campaign which had been misunderstood, perhaps deliberately, by propagandists such as Aleksei Gagarin, as a deliberate change of Party policy.

The day after this decree N.P. Silant'ev finally reported to Pospelov on the intentions of 'Znanie' to establish a new journal, *Nauka i Religii*, the imminent launch of which had already been announced on Moscow radio on August 12th.<sup>23</sup> The journal was intended to be launched in January 1955, with 75,000 issues on sale; Aleksandr Oparin was to be editor, with Fëdor Oleshchuk, ex-head of the League of the Militant Godless as deputy editor, presumably intended to take day-to-day responsibility for the journal. Despite Oleshchuk's presence, the journal's proposed editorial board reflected a wide range of scientific knowledge: amongst those on the board were the Michurinist biologist Georgii Khrushchëv, the astronomer Boris Vorontsov-Vel'iaminov and the chemist and historian of science Nikolai Figurowskii.<sup>24</sup> However, the journal's appearance was to be postponed indefinitely in early 1955, when it was instead decided to engage in greater scientific-atheistic propaganda on the pages of 'Znanie's popular science journal *Nauka i Zhizn*', and use it to train cadres of propagandists for the eventual appearance of *Nauka i Religii*.<sup>25</sup> This postponement was indicative of the general disorder, confusion and bemusement that the November 1954 decree caused. Those who had pushed for more educative, science-based propaganda, now realised that the Party leadership's interests and resources had passed on to other areas, while the fire-brands who had been let loose during the 1954 campaign now felt aggrieved and resentful.

These tensions led to further arguments between Silant'ev and Gagarin, representing these two distinct trends, at meetings held to discuss the state of scientific-atheistic propaganda later in 1954. Silant'ev stated:

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<sup>22</sup> N. Khrushchëv 'Ob Oshibkakh v Provedenii Nauchno-Ateisticheskoi Propagandy sredi Naseleniia' in *Pravda*, 11th November 1954, p.1

<sup>23</sup> Sister Consolata Delaney, 'Atheistic Organisations in the USSR' p.24

<sup>24</sup> Silant'ev to Pospelov, 11th November 1954: GARF f.9547/op.1/d.987a/l.138-9

<sup>25</sup> Laptev to CC CPSU, 5th January 1954: GARF f.9547/op.1/d.1051/l.1-2

We are reaching the point of view that great specialists in natural sciences cannot carry out scientific-atheistic propaganda. This is an incorrect point of view. Another point of view exists, that if the lecture does not drive the anti-religious theme home directly, it has abandoned scientific-atheistic propaganda. We do not agree with this point of view.<sup>26</sup>

He had a further clash with Gagarin at a meeting on 23rd November, where Gagarin grumbled that, in contrast to Stalin's time 'today we orientate ourselves solely by what pleases the clergy, or doesn't, what insults believers, or doesn't.... There is a danger that if we take up the slogan of [1920s Bolshevik propagandist] Skvortsov-Stepanov that natural science is, in itself, Marxism, then we'll just end up like Auguste Comte....' Silant'ev had to step in to warn the old *bezbozhniki* that they were not 'the leading organ of this country, therefore we may not criticise Party, Komsomol or trade union organisations.' He also cautioned Gagarin and the rest of the old atheistic propagandists that they had 'still not drawn all the conclusions from the Central Committee decree on the nature of scientific-atheistic propaganda.'<sup>27</sup>

The matter was not resolved until 4th February 1955, when 'Znanie's deputy chair, Laptev delivered a report on the Society's anti-religious work, in which he criticised 'Talmudic refutations of religious, biblical, evangelical dogmas and legends... which are not supported by any scientific evidence' and *antireligiozniki* who 'were not armed with knowledge of chemistry, physics, biology and yes, even a knowledge of social sciences like philosophy and history.' He did agree with Gagarin that scientific lectures required a greater degree of 'militancy' (as one of those who had led the campaign against 'idealistic' Mendelist genetics he had a vested interest here). However, Gagarin refused to submit to the usual ritual of *kritika i samokritika*, instead accusing Karpov, Chairman for the Affairs of the Russian Orthodox Church, of 'kissing' the Church and the Patriarch, leading Laptev to intervene, reminding him: 'I suggest you don't speak out against state organs within our Society. The Council of Religious Affairs is part of the government.' Gagarin, unabashed, drew a distinction between Karpov's post and his personal policy and accused him of pursuing 'opportunistic relations' with the Church, drawing a round of applause from those present. The following day Laptev forwarded Gagarin's speech to Agitprop and soon afterwards Gagarin

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<sup>26</sup> 'Znanie' Presidium Meeting of 26th October 1954: GARF f.9547/op.1/d.1002/l.43-4

<sup>27</sup> 'Znanie' Presidium Meeting of 23rd November 1954: GARF f.9547/op.1/d.1002/l.83-9, 107-123

was replaced as head of the scientific-atheism section by S.N. Khudiakov, who had loyally followed the new Party policy throughout late 1954 and 1955.<sup>28</sup> However, the new Party policy adopted in November 1954 was only confirmed at a plenum of the Presidium of 'Znanie' in early March 1955. This five-month lag was not unusual; those responsible for scientific-atheistic propaganda within the Ministry of Culture were still being criticised as late as mid-1955 for failing to organise atheistic propaganda, not possessing 'deep theoretical knowledge' and insulting the feelings of believers with 'a superficial extrapolation of themes'.<sup>29</sup>

Even once the new Party line had been enforced amongst propagandists, it quickly became apparent that the new emphasis on well-qualified scientific content in atheistic lectures was going to cause difficulties. Reporting on progress at the end of May 1955, Silant'ev noted that atheistic lectures had peaked during the last three months of 1954 with 57,000 lectures delivered, a figure that had fallen to 29,138 in the first three months of 1955. This was a clear sign that those *antireligiozniki* who had so enthusiastically thrown themselves into the campaign of 1954 were now either demoralised or were being vetoed for lecturing by local organisations. Silant'ev complained that, in addition, 'The natural science sections sometimes show unbearable lagging, do not really include this important sector in their work and sometimes needlessly complicate issues, claiming they are not acquainted with the specifics of anti-religious work.' Khudiakov agreed: 'We should say honestly that recently only *antireligiozniki* have been speaking. Now we must broaden our lecturers to natural scientists, but it appears some natural scientists are afraid [to participate].' The decree adopted by 'Znanie' in May 1955 criticised *Nauka i Zhizn'* for failing to print enough atheistic material and the society's publishing house for failing to produce even a list of proposed titles for atheistic pamphlets to be published during 1955.<sup>30</sup> The problem did not improve during the course of 1955 as scientists failed to participate and *antireligiozniki* either carried on as before or, discouraged, ceased to lecture. A report prepared for 'Znanie' and sent to the Central Committee in December 1955 made the point that the majority of lectures either remained anti-clerical tirades or science lectures devoid

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<sup>28</sup> Conference of 'Znanie' Section Leaders, 4th February 1955: GARF f.9547/op.1/d.1048/l.1.3-25, 37-43, Laptev to D.M. Kukin, 5th February 1955: f.9547/op.1/d.1051/l.33

<sup>29</sup> *Sovetskaia Kul'tura*, 16th August 1955, p.1

<sup>30</sup> 'Znanie' Presidium Meeting of 31st May 1955: GARF f.9547/op.1/d.1041/l.178-85, l.194-5, GARF f.9547/op.1/d.1040/l.61-4

of ideological content.<sup>31</sup> A seminar for RSFSR lecturers held in January 1956 likewise noted that scientific-atheism still revolved around hackneyed lectures on 'The Origins of Man' or astronomy lectures that focused on the biography of the medieval martyr Giordano Bruno.<sup>32</sup>

By early 1957 it appeared the atheism section at 'Znanie' was drifting back towards its old habit of simply producing endless works of biblical criticism and church history, to the extent that Silant'ev now accused Khudiakov and his department of failing to recruit scientists: 'You continue to rely on atheists, and not scientists.... Scientists, with the exception of the bureau, do not work actively.' Furthermore he accused Khudiakov of taking a 'political line' instead of recanting his errors and following the Party course established in November 1954.<sup>33</sup> Criticism of the society's propaganda continued unabated, with the old *antireligiozniki* often drawing unfavourable comparisons with the pre-war League of the Militant Godless, and occasionally calls were made to revive the old society and make it independently responsible for scientific-atheistic propaganda.<sup>34</sup> Critical comments also came from one of *Literaturnaia Gazeta's* correspondents, V.D. Shaposhnikova, who reported to Mikhail Suslov in April 1958 that scientific-atheistic propaganda, including that conducted by 'Znanie', was characterised by 'dogmatism' and was 'deeply disappointing' for those who attended lectures. Tatiana Chumachenko has described this letter as the 'impulse' that led to Agitprop adopting a more radical approach towards organised religion during the course of 1958.<sup>35</sup> During 1958 even the Society's chairman, Mitin, came round to the view that 'Znanie' was unsuited to the task of anti-religious work, and urged the foundation of a united council on atheistic propaganda which would draw in the Ministry of Culture, the Union of Writers, the Komsomol, the Institutes of History and Philosophy and others, all then engaged in unrelated work. However the idea was deemed 'unacceptable' and it was instead suggested Mitin focus on gathering more qualified scientific experts to participate in propaganda.<sup>36</sup>

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<sup>31</sup> Report by A.S. Vasil'ev, December 1955: GARF f.A-561/op.1/d.22/l.1-15

<sup>32</sup> All-Russian Conference of Chairs of 'Znanie' Scientific-Atheistic and Science Sections, 10th January 1956: GARF f.A-561/op.1/d.65/l.45, 56

<sup>33</sup> 'Znanie' Presidium Organisational Meeting, 18th January 1957: GARF f.9547/op.1/d.1099/l.21

<sup>34</sup> 'Znanie' Central Committee Plenum, 4-8th March 1955: GARF f.9547/op.1/d.1171/l.163

<sup>35</sup> Tatiana A. Chumachenko, *Church and State in Soviet Russia*, pp.149-51

<sup>36</sup> Mitin to CC CPSU, 23rd May 1958: GARF f.9547/op.1/d.1123/l.57-8, Il'ichëv and Snastin to CC CPSU, 24th July 1958: RGANI f.5/op.33/d.59/l.29

Chumachenko has argued that one of the preconditions for the renewed anti-religion campaign of the late 1950s was that the 'propaganda campaign for atheism adopted a certain scientific form and, consequently, effectiveness.'<sup>37</sup> She quotes in support of this claim the statement of a discontented priest from the village of Svirn, in the Radekhov *raion*:

They often give lectures on atheism and science at our club. A significant portion of the village attends these lectures. They show documentary films and conduct chemical experiments, and these arouse great interest. As a result, believers now pose questions to me that previously they dared not ask for fear of sinning. And many schoolchildren have stopped greeting me when we meet. Those that greet me do not remove their caps.<sup>38</sup>

Although scientific-atheistic propaganda did have undoubted successes, such as this, it is clear from the comments of propagandists and activists themselves that such successes were few and far between, and Chumachenko is forced to concede that such victories are 'isolated facts from the archives of the Council for Russian Orthodox Church Affairs for this period.'<sup>39</sup> Therefore, I would argue that rather than the success of scientific-atheistic propaganda being a precondition for the re-initiation of the anti-religion campaign in 1958, its ongoing failure was what prompted the turn to more activist methods. Having examined the shift towards a more scientifically grounded form of atheistic propaganda in 1954, and some of the arguments that arose regarding this, it is time to examine in more depth the reasons why scientific-atheistic propaganda was so evidently failing by the late 1950s.

### **NAUKA I RELIGIJA AND THE MATERIALIST WORLDVIEW**

The problems that propagandists had faced in developing more sophisticated atheistic propaganda were supposed to be resolved with the publication, from autumn 1959, of a new journal devoted to the issue, *Nauka i Religija*, which had initially been planned for publication by 'Znanie' in 1955. However,

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<sup>37</sup> Chumachenko, *Church and State in Soviet Russia*, p.192

<sup>38</sup> *ibid.*, p.175

<sup>39</sup> *ibid.*, p.175

criticism of *Nauka i Religiia* arose as soon as its first issue was published, when the head of the atheism section of the Society's RSFSR branch wrote a review for Mikhail Suslov. He commented: 'Readers have been waiting for this journal, but it isn't what they had in mind.' He also went on to note that scientific material, such as articles by Oparin on the origin of life, were poorly written, merely repeating what had been seen elsewhere before, and that some articles could aid 'reactionary propaganda'. However, he seemed confused over whether the journal should be written in simple language and aimed at believers, or should be more technical and aimed at propagandists; obviously it could not be both. This was an unresolved issue that was to continue to plague the journal.<sup>40</sup> Criticism was also heard at a conference of republican society leaders in December 1959, where the representative from Lithuania noted 'My own impression, and that of my comrades, is that the name doesn't correspond to the content of the journal, which covers religion in the light of science, but has very little actual science.'<sup>41</sup>

The editor of the journal, Kolonitskii, did not accept this criticism, writing to Suslov that, prompted by Khrushchëv's ideological spokesman Fëdor Il'ichëv, the journal had sought to attract 'not those comrades who had made atheism their profession, and do nothing else, but scientists, social figures, Party activists and workers in the soviets.' However, this was not to the taste of the atheism sections of the Society, which sought a 'monopolistic position' with regard to anti-religious propaganda and were attempting to purge the editorial board, introducing a more academic tone which would make the journal less accessible to the general public.<sup>42</sup> It must be noted that, in contrast not only to the editorial board of the society's flagship journal *Nauka i Zhizn'*, but also to the editorial board originally proposed in 1955, there were few prominent scientists or academics amongst the board of *Nauka i Religiia*, which was already dominated by professional propagandists. However, Agitprop met to discuss Kolonitskii's claims and came to the conclusion that, although the journal had attracted a number of leading scientists, including Oparin, the famous astronomer Ambartsumian and the Michurinist biologist Tsitsin, it was failing in its tasks and had not taken a sufficiently hard-line.<sup>43</sup>

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<sup>40</sup> A. Kurantov to M. Suslov, 19th August 1959: RGANI f.5/op.33/d.100/l.57-61

<sup>41</sup> Conference of Deputy Chairs of Republican 'Znanie' Societies, 21st December 1959: GARF f.9547/op.1/d.1158/l.83

<sup>42</sup> Kolonitskii to Suslov, 26th January 1960: RGANI f.5/op.33/d.137/l.72-5

<sup>43</sup> Romanov to CC CPSU, 27th May 1960: RGANI f.5/op.33/d.137/l.76-7

A review of the content of *Nauka i Religii* does seem to justify many of the criticisms levelled at it and, as the articles in the journal were used by lecturers as models for their own texts, these criticisms could be levelled at scientific-atheistic propaganda in general. The journal's articles did cover a broad range of scientific topics, taking in cosmology and the space race (covered in detail in Chapter Five), Michurinist biology, Darwinism, chemistry, agricultural science, cybernetics and Pavlovian psychology. However, despite this broad coverage the vast majority of articles fell into two general groups. The first took a historical perspective, showing how those who sought to develop a scientific discipline had been persecuted by the church, and then demonstrating the modern fruits of work in that discipline to drive home a largely negative atheistic message. Such articles tended to be fairly distant from the everyday reality of Soviet life, dealing with the abstract debates of theologians and ideologues, and espousing abstract freedoms, rather than demonstrating the practical benefits of science. The second type of article took an everyday phenomenon, whether natural (such as lightning) or artificial (such as insecticide or asbestos) and demonstrated how modern, secular knowledge was freeing Soviet citizens from reliance on the whims of nature. This pressed home the positive message of man's ability to master and reshape his environment and taught the most poorly-educated readers about new innovations they might meet in their everyday life. The ability of modern science to reproduce biblical miracles, such as modern chemistry's ability to 'create materials never known in nature', was often emphasised. These miracles, often reproduced during lectures, included turning blood into water, transforming bronze coinage into silver coinage, making handwriting disappear and replicating 'crying' icons. Microscopes were also used to demonstrate the presence of bacteria in 'holy' water.<sup>44</sup> However, as critics indicated, the journal showed no awareness of the scientific literacy of its target audience; articles explaining that dreams and lightning were not signs of divine intervention mingled uneasily with ideologically-loaded and complex refutations of 'idealist' interpretations of Darwinism or Pavlovian psychology.

Kolonitskii continued to defend his journal against critics, writing in 1960 that the journal was doing a good job of exposing reactionary politics 'especially, those of the Vatican'. However, he suggested changing the name of the journal to make it sound less academic, as he argued 'not only science but our

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<sup>44</sup> See Michael E. Powell, *Antireligious Propaganda in the Soviet Union: A Study of Mass Persuasion* (MIT: Cambridge MA 1975), p.114, Alekseev, 'Shturm Nebes' Otmeniaetsia?', p.228

whole way of life' could be used against religion. He also tried to solve the problem of the journal addressing two audiences, by suggesting that methodological materials for lecturers be printed separately, but sent out to lecturers along with their subscription copy (for which they had to pay, despite the fact that few of them received payment for lecturing).<sup>45</sup> However, Kolonitskii later dropped his ideas following a meeting with the staff of Agitprop, where it emerged he had not cleared his plans with the Presidium of the society.<sup>46</sup> Kolonitskii was to come in for further criticism in 1961 when a number of irregularities within the editorial staff emerged, including the theft of restricted materials from the journal's offices. The journal's secretary had to be removed after it emerged he had recruited one writer who was 'a plagiarist and psychologically ill' and another who had travelled the provinces extorting money from religious groups by threatening to expose their activity on the pages of the journal.<sup>47</sup> It seems to have been obvious to everyone in 'Znanie' and Agitprop that *Nauka i Religiiia* was failing in its tasks, and even its editor was forced to admit that its articles were all 'similar to each other, as they reach the conclusion there is no God. This isn't just a deficiency with the journal, but with scientific-atheistic propaganda as a whole.' Damning with faint praise, the Society's chairman at the time, Nikolai Semënov, noted: 'Well, if we're talking about *Nauka i Religiiia*, I hardly ever read it, but it's not bad, fairly lively....'<sup>48</sup>

The ability of *Nauka i Religiiia* to attract well-qualified scientific writers declined throughout the first five years of its publication: in 1960 over a quarter of its scientific articles were written by Academicians or Correspondents of the Academies of Science, with another third being written by authors with scientific qualifications of some kind. A further 10% of articles were provided by other non-staff members whose careers related to science, such as cosmonauts or science-fiction writers. However, by 1964 only 1.6% of science articles were being written by Academicians or Correspondents, and almost three-quarters of all scientific material was being provided by writers without scientific qualifications, leaving the journal to rely largely on the work of professional *antireligiozniki*. Recognising that the journal lacked direction, a thorough reorganisation was finally undertaken in the summer of 1964, with a major purge of the editorial board. Agitprop declared that the journal must undergo 'a change of direction', abandoning its

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<sup>45</sup> Kolonitskii to CC CPSU, 6th October 1960: RGANI f.5/op.33/d.156/l.128-31

<sup>46</sup> Snastin and Bogoliubov to CC CPSU, 3rd November 1960: RGANI f.5/op.33/d.156/l.132

<sup>47</sup> Mesiatsev to Agitprop, 11th March 1961: GARF f.9547/op.1/d.1218/l.28-34, 'Znanie' Presidium Meeting of 31st March 1961: GARF 9547/op.1/d.1213/l.45-69

<sup>48</sup> 'Znanie' Presidium Meeting of 6th July 1962: GARF f.9547/op.1/d.1265/l.164, 172

'limited focus' to touch upon 'numerous issues of contemporary life, going beyond the boundaries of the inter-relation of natural science and religion; the meaning of life, happiness and consolation, moral and immoral conduct, truth and conscience, good and evil.... It is precisely on these issues that the preaching of the clergy now focuses....' Despite this change of direction, Kolonitskii's earlier suggestion of a change of title, potentially to *Svet* or *Mysl'*, was not endorsed.<sup>49</sup>

This change of emphasis was partially related to the fact that the target audience of anti-religious propaganda began to shift in the late 1950s, from uneducated peasants to young, urban dwellers. The stock cliché of the anti-religious propaganda of the late 1950s was the young Komsomol member who had agreed to a religious marriage, or joined a Baptist sect, often with foreign connections. Great concern was provoked in the Komsomol by a report produced in 1957 stating that during the previous year there had been 311 applications to seminaries from those aged 18 to 20 and who had undergone full secondary schooling; furthermore, amongst these applications were many from Komsomol members.<sup>50</sup> Delegates to a 'Znanie' conference in 1959 noted that Adventists had 'special women for recruiting' and that young Soviet citizens joined the sect 'because they want to live an American lifestyle and this sect comes from America.'<sup>51</sup> A speaker at a conference on the ideology of contemporary sectarians, held the next month, argued that 'all sects are connected with a world-centre in Brooklyn, in the United States of America' and that they were seeking converts in the Orthodox Church.<sup>52</sup> Such comments were symptomatic of a campaign that was beginning to shift from publicly attacking religion in general to focusing on marginal groups that were supposedly importing alien ideologies into the USSR. The disaffected *stiliagi* who were now targeted had already grown up under socialism, receiving a full scientific education, and what they needed was greater political awareness rather than explanations of the nature of lightning. The new approach was perhaps signalled by the fact that the old *antireligioznik* Aleksei Gagarin, who had apparently retired in 1955, was chosen to open a conference debating the reasons for the tenacity of religious 'vestiges' in January 1960, timed to coincide with a new Central Committee decree on ideology. He argued that: 'We've made our scientific-atheistic propaganda too intellectual. We concentrate all our attention on the

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<sup>49</sup> Zaichkov and Mezentsev to CC CPSU, 31st August 1964: RGANI f.5/op.55/d.83/l.197-9

<sup>50</sup> Alekseev, '*Shturm Nebes*' *Otmeniaetsia?*, p.219

<sup>51</sup> 'Znanie' Seminar on Scientific-Atheism, 15-16th April 1959: GARF f.A-561/op.1/d.283/l.11

<sup>52</sup> 'Znanie' Theoretical Conference on the Question of the Ideology of Contemporary Sectarianism, 30th May 1959: GARF f.A-561/op.1/d.282/l.28

significance of a Marxist-Leninist worldview or on abstract philosophical theories.... But people live by their feelings as well as by their thoughts.’<sup>53</sup>

Had attempts to inculcate a materialist worldview in the population had any success at all in the years that followed the November 11th 1954 decree? There is very little direct evidence to argue either way, but the discussions related above would suggest that even those who spent their days producing this propaganda were convinced of its futility, and the survival of religious sentiment through the lifespan of the Soviet Union obviously supports this conclusion. It is true that a vocal minority did testify to the success of anti-religious propaganda and persistently argued that it should be increased, as demonstrated in a number of letters to the State Committee on Radio and Television in 1957 and 1963. One teenage school-girl from Kursk listened to a report in 1957 on a trainee for the clergy who became a militant atheist: ‘I listened to this broadcast with great satisfaction, and believe this broadcast will play a great role in changing the convictions of youth i.e. it did its job. I don’t believe in religion anymore, and after the launch of the first satellite of the Earth my disbelief has become greater.’ During 1963 letters about the deficiency of scientific-atheistic programmes were one of the most common items received by the State Committee, with a typical letter from Comrade Podol’skii of Zhdanov stating: ‘Churches and sectarians are a greater threat to our lives than thieves. They steal people’s minds, turning them into maniacs.’<sup>54</sup> However, even amongst those who were hostile to the Church and willing to express this publicly, very few can be said to have adopted a ‘materialist’ worldview; more often they resorted to the indignant anti-clericalism which had been common in pre-revolutionary Russia. The Central Committee gathered reports on the reaction of the public to the ‘liberal’ decree on religion of 11th November 1954, and found the overwhelming majority of those who responded were grateful to the government for taking a more relaxed stance towards the churches. However, even those who complained about religion focused their criticism on priests who drank too much or overcharged for burials and candles, and more general criticisms of religious mentality or ideology were entirely absent.<sup>55</sup> Even those rare individuals who were converted to atheism might not always be grateful,

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<sup>53</sup> ‘Znanie’ Theoretical Conference on the Causes of the Tenacity of Religious Vestiges in the USSR, 18th-20th January 1960: GARF f.A-561/op.1/d.399/l.15

<sup>54</sup> Review of Letters from Radio Listeners, November 1958: GARF f.6903/op.10/d.14/l.28, Annual Review of Letters from Radio Listeners, 1963: GARF f.6903/op.10/d.34/l.109

<sup>55</sup> Tishchenko and Chertov to CC CPSU, 13th November 1954: RGANI f.5/op.32/d.12/l.3, Tishchenko and Chertov to CC CPSU, 20th November 1954: RGANI f.5/op.32/d.12/l.8

as one child who grew up in the early 1960s recounted: ‘Unfortunately, I believed “science”, but for some reason I always envied those people from the past to whom science had not yet shown that God didn’t exist. It seemed to me that life with faith was much better than materialism.’<sup>56</sup>

The development of *Nauka i Religii* over the first five years of its publication demonstrated that it had utterly failed to attract leading scientists to its work, and its scientific content was dull, repetitive and loaded with unreadable ideological baggage. There is no indication that the scientific-atheistic propaganda in this journal, or any other, made the slightest impact on the mentality of the wider population. The response of the editorial board, who themselves seem to have suffered from a crisis of morale from the first months of publication, was to push *Nauka i Religii* gradually away from scientific content towards becoming a ‘lifestyle’ journal which could make use of a different field of writers and cover a broader range of subjects. This trend fitted with an emerging awareness amongst ideologues that religion was not simply a result of ignorance; once again the complexities of religious belief had confounded attempts to present a simple dichotomy of ‘science against religion’.

## **THE PROBLEM OF SCIENTISTS AND SCIENTIFIC-ATHEISM**

Scientists posed two major, inter-related problems with regard to scientific-atheistic propaganda. First, as became increasingly apparent after 1954, the vast majority of Soviet scientists had no desire to participate in scientific-atheistic propaganda. Whether this was because they were themselves religiously-inclined or simply because they saw the ‘struggle between science and religion’ as irrelevant to them, it led the authorities to fear that believers, both at home and abroad, would draw the conclusion that Soviet scientists still adhered to religious rather than Marxist worldviews. Second, many of the greatest scientists of the previous two centuries, some of whom were unquestioningly held up as iconic figures in Soviet propaganda, had had a relationship to religion which was, at best, ambivalent.

Anti-religious activists had to constantly struggle to explain why some of the greatest scientists of the twentieth century held religious beliefs. The atheist writer I.A. Krylev, tackling this problem with

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<sup>56</sup> Cited in Vitalii Bezrogov, ‘Mezhdu Stalinym i Khristom: Religioznaia Sotsializatsiia Detei v Sovetskoi i Postsovetskoi Rossii’ (Conference Paper for ‘Theories and Practices of Education in Imperial and Soviet Russia, 1861-1991’, University of Oxford 14-16th May 2004)

regard to Max Planck, asked: 'Do the views of Planck in any way rely on his work in physics? It turns out no.' According to Kryvlev, his religious views 'in no way reflect the science or authority of Planck the physicist.' L. Driuanov, selecting Planck as an example of scientists who 'become the victims of the monstrous social contradictions created by capitalism', noted how Planck had lost his wife and two daughters young, and had his oldest son killed at Verdun. Despite these personal tragedies, and the fact that the majority of his family were closely involved with the church, Planck's 'religious views were in no way similar to the traditional teachings of the church' and in religion he only sought moral guidance rather than an explanation of the workings of nature.<sup>57</sup> Many of the other great physicists of the twentieth century presented difficulties for Soviet authors; by the late 1950s it had to be conceded that their work had objective scientific value, but their unconventional personal beliefs often contrasted dramatically both with religious doctrine and with dialectical materialism. The popular science writer Vladimir L'vov sought to resolve this conundrum with regard to Einstein, after reading a *samizdat* publication written by one 'Krasnov' that referred to Einstein's religiosity. L'vov conceded that the great physicist dabbled with the idealistic philosophy of Mach yet 'he avoided straying over the border where the idealistic system of Mach becomes everyday *popovshchina*.' Although he had helped Jewish charities in Palestine in the 1920s, Zionism, with its 'bourgeois-nationalist streak, concealed under a reactionary, racist and religious veneer' was 'alien to him'. L'vov did quote a telegram where Einstein admitted to a belief in 'the God of Spinoza, showing himself through the order of the world, and not a God occupied with the fates and lives of people.' However, supported by quotations from Leo Infeld and Norbert Weiner, he argued that Einstein's religion was 'nothing more than the natural and normal awe of the scientist, inspired by nature and its deeply hidden secrets' and that atheism and such beliefs were as similar as 'two drops of water'.<sup>58</sup>

Such attempts to emphasise the atheistic credentials of great scientists, often contrary to their own statements, were not limited to physicists. Articles regularly appeared in *Nauka i Religii* insisting that Darwin was an atheist, despite his own statements, liberally quoted for readers, that he was actually an agnostic. However, perhaps the case that was most significant for atheist propagandists was that of Pavlov, as his unique position as both a leading light of the 'progressive Russian intelligentsia' prior to 1917 and as

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<sup>57</sup> I.A. Kryvlev, *Sovremmenoe Bogoslovie i Nauka* (Gozpolizdat: Moscow 1959), pp.168, L. Driuanov, 'Nesostoiatel'nyi Argument' in *N&R* August 1961(No.8), pp.7-14

<sup>58</sup> V. L'vov, 'Enshtein i My' in *N&R* February 1960 (No.2), pp.19-25

a scientist of world stature under the Soviet regime jarred with recurrent rumours of his religious inclinations. One writer defensively noted: 'At almost every lecture or conversation you come across the statement: "Well, Academician Pavlov himself believed in God, so it can't be this simple", although the question of the relationship of this or that scientist to religion doesn't proof anything.'<sup>59</sup> Kryvlev argued that Pavlov had only occasionally been spotted in churches, which he visited 'to recreate in his mind the atmosphere of his childhood.' Concluding his analysis of the religious statements of great scientists, Kryvlev noted: 'Basically they are not alien to human weakness.... Of course scientists are worried by sickness, death and the fear of nuclear war threatening humanity. In many cases they need consolation which they can find only in religious illusion....'<sup>60</sup> However, this demonstrated the central paradox at the heart of atheistic propaganda. Scientists were considered to be 'living in communism' already, as many of them publicly stated during this period; they were free from material want and had been released from the burden of physical labour, as all men would be under communism. Furthermore, even fully-fledged communism would not liberate man from death (although a few foolhardy writers did suggest otherwise) and therefore, if even the most educated men in world science could not shake themselves free of religion when faced with death, why should the common man do so as the era of communism approached? The obvious answer was that, in a world where death remained a fact of life, scientific education alone would not automatically produce atheism. Thus, such biographical apologetics for the religiosity of great scientists undermined one of the core ideological postulates of scientific-atheistic propaganda.

Furthermore, as 'Znanie' recognised, even within the Soviet scientific intelligentsia, which had been continually drilled in dialectical materialism and provided with the best living conditions the Party could offer, there were many individuals who retained an inclination towards religion. One lecturer noted that Professor Granovskii of Moscow State University, '(who can hardly be considered amongst the backward people) wrote in a letter to his friend Stankevich, saying that if it is impossible to think of an undying soul then life loses any kind of meaning.' The same speaker also mentioned the case of Professor Filatov of the Ukrainian Academy of Medicine, who was 'definitely' a materialist but insisted on keeping

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<sup>59</sup> G. Linnikov, 'Eshche Raz ob Ateizme I.P. Pavlova' in *N&R* September 1961 (No.9), pp.19-21

<sup>60</sup> I.A. Kryvlev, *Sovremennoe Bogoslovie i Nauka* pp.172, 183

icons on his wall.<sup>61</sup> The KGB reported similar tendencies amongst the scientific intelligentsia in a report sent to the Central Committee by Aleksandr Shelepin in April 1959. The report named several physicians who remained religious believers, including E.A. Loginova of the Moscow Institute of Health and the History of Medicine, who had a 'spiritual mentor in the person of the priest Takhitskii, and she asked his blessing for the defence of her dissertation and for writing a book on the history of medicine.' The attempt to inculcate 'religious ideas' amongst students by N.K. Kazimirchak-Polonskaia, a researcher of the Institute of Astronomy in Leningrad, was also noted with a mix of disapproval and disbelief.<sup>62</sup> Whether the authors of popular science articles were themselves so religiously-inclined is difficult to tell, but few of the atheistic conclusions to articles in *Nauka i Religii* were notable for their passion and conviction. On occasions scientists even portrayed the church favourably in print, as in an article by Lysenkoist cytologist Aleksandr Studitskii in *Znanie - Sila*, where he compared his discoveries in science to entering church as a child: 'Darkness disappeared. It was light as day. And the old church, lit by these lights, seemed to be not the dwelling place of God, but a miraculous place, created for the joy and happiness of people.'<sup>63</sup>

Kolonitskii, editor of *Nauka i Religii* regularly complained that people with higher education refused to write for the journal: 'Academician Tamm said flat-out that I shouldn't trouble him with such trifles. It's true this was an extreme case, but in the majority of cases I receive a refusal in a delicate form.... Amongst our scientists the view predominates that science is one thing and atheism is another.'<sup>64</sup> He also stated in November 1963 that, while scientists were willing to provide him with purely scientific articles, they considered commentary on 'worldview' issues the province of the editor; such an attitude was 'pouring water on the mill of slander' which operated in the West and claimed that Soviet scientists continued to believe in God.<sup>65</sup> This attitude was hardly surprising given the way that writers appear to have been treated when they agreed to write scientific-atheistic pamphlets. One such example is provided by the case of M.S. Plisetskii, an anthropologist and one of the most regular scientific-atheism lecturers for the Moscow branch

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<sup>61</sup> Lecture by V.N. Kolbanovskii at 'Znanie' Seminar on Scientific-Atheism, 20th April 1959: GARF f.A-561/op.1/d.283/l.108, 158

<sup>62</sup> A. Shelepin to CC CPSU, 3rd April 1961: RGANI f.5/op.33/d.127/l.85-7, in Corley, *Religion in the Soviet Union*, pp.210-1

<sup>63</sup> A.N. Studitskii, 'Pod Angliiskom Nebom' in *Z-S* April 1958 (No.4), pp.18-22

<sup>64</sup> 'Znanie' Presidium Meeting of 6th July 1962: GARF f.9547/op.1/d.1265/l.163

<sup>65</sup> Speech to the CC Ideology Commission Meeting on Scientific-Atheism, 25-26th November 1963: RGANI f.72/op.1/d.15/l.213-4

of 'Znanie'. During 1955 he provided a text for the society on the development of anthropology in conflict with the church, intended to be the first text published in accordance with the new policy on scientific-atheism announced in November 1954. However, despite the fact that Plisetskii was a recognised figure within his field and had discussed the text on numerous occasions with members of staff at the Institute of Anthropology (where he worked), he was criticised by non-specialists for his scientific errors and unclear exposition, and told that he needed to pay more attention to Engels's work on the subject. He was ordered to rewrite the text, clearly to his irritation, thus further delaying the publication schedules of the society.<sup>66</sup>

Scepticism about the value of combining science and atheistic propaganda could also be found within the teaching community. Science teachers were generally expected to contribute to the atheistic education of children through demonstrating 'chemical miracles', exposing biblical stories as myth, or organising the construction of models of Giordano Bruno being burnt at the stake. The Methodological Council of the RSFSR Ministry of Enlightenment met on 29th October 1954 to approve a set of guidelines for teachers that had been drawn up in a hurry over the previous two weeks. Speakers noted undesirable superstitions, which led to parents withdrawing their children from schools and crèches during the 1954 solar eclipse, and called for children to be educated on subjects such as the struggle of the Catholic Church against steam power, and the 'struggle of religious fanatics against lightning conductors.' One speaker argued: 'We cannot fear maximalism!'<sup>67</sup> However a meeting to approve a new scientific-atheistic chemistry textbook led to complaints about the books containing too much religion and too little science, and confusion over whether teachers were supposed to engage in 'anti-religious' education, 'scientific-atheistic' education or 'militant materialism.' Some teachers firmly stated that a science teacher's job was to explain science, and allow students to draw their own conclusions, and even suggested that seeking to expose religious myths and superstition would only educate students in out-dated ideas that they would not hear elsewhere.<sup>68</sup>

Many of the problems involved in producing scientific-atheistic propaganda can be illustrated by the example of the Academy of Sciences Scientific-Atheism Commission. This commission was established

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<sup>66</sup> 'Znanie' Presidium Meeting of 28th June 1955: GARF f.9547/op.1/d.1041/l.213-22

<sup>67</sup> Session of the Education-Methodological Council of the RSFSR Ministry of Enlightenment, 29th October 1954: GARF f.A-2306/op.75/d.852/l.17-18, 28, 58, 31

<sup>68</sup> Session of the Chemistry Education-Methodological Council of the RSFSR Ministry of Enlightenment, 3rd February 1955: GARF f.A-2306/op.75/d.1022/l.12-14, 17, 23, 29

on 30th October 1954 and included, amongst others, the Lysenkoist cytologist Aleksandr Studitskii, the historian of chemistry Nikolai Figurovskii and Dr. Boris Kukarkin, a careerist astronomer and director of the Shternberg Astronomical Institute.<sup>69</sup> The commission was chaired by the aged Vladimir Bonch-Bruevich, who was continuing to meet resistance in his attempts to re-establish an academic niche at the Institute of History and was obviously keen to guarantee his intellectual legacy. The members of this commission were ordered to arrange lectures, books, pamphlets and collections of essays by appropriate figures within their disciplines, but they soon encountered difficulties. Academician Anatolii Blagonravov, Academic Secretary of the Academy's Technology Section simply refused to participate in the commission's work, arguing it fell outside the 'general direction' of work in the section.<sup>70</sup> Disputes also arose amongst the members of the commission; the scientists, championed by Aleksandr Oparin, felt the Central Committee decree of 11th November 1954 stressed the importance of 'natural science propaganda', but found themselves faced with 'vestiges of an old anti-religious approach' from academic specialists in the history and theory of religion.<sup>71</sup> These specialists, headed by Bonch-Bruevich himself, continued to defend the inclusion in the publishing plan of such topical themes as the cults of Polynesia and the persecution of Goya by the Inquisition. There was the additional problem that many of the scientific works put forward contained little in the way of atheist material, although they were evidently materialist. It is probable that many scientists only submitted such works to the commission in the hope of bypassing the usual bureaucratic publishing apparatus. One member of the commission admitted as much, when he stated 'we consider all works of the employees of the section of biological sciences to be atheist. This is our assumption when we plan scientific-atheist work.'<sup>72</sup> Given these problems it is unsurprising that the commission achieved very little and lost any direction it may have had after the death of Bonch-Bruevich in July 1955. He was never formally replaced as chairman and the last recording meeting held by the commission was in December 1955.

Despite these ongoing difficulties attempts were made in the late 1950s to improve and diversify scientific-atheistic propaganda. Greater attention seems to have been paid to the range of cultural activities

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<sup>69</sup> Academy of Sciences Presidium Resolution No.34-1965, 30th October 1954: ARAN f.498/op.1/d.2/l.51

<sup>70</sup> Report of A.A. Blagonravov, 9th December 1954: ARAN f.498/op.1/d.1/l.26

<sup>71</sup> Commission Meeting of 26th November 1954: ARAN f.498/op.1/d.3/l.24-30

<sup>72</sup> Commission Meeting of 1st December 1954: ARAN f.498/op.1/d.10/l.5

offered by the Houses of Atheism that were run with the support of 'Znanie'. The Odessa House of Atheism, for instance, which opened in 1957, was run entirely by volunteers and had sections devoted to lecture propaganda, literature and art, history and atheistic discussions, as well as astronomy and the production of 'miracles without miracles'. Amongst the events it organised were talks on the sputniks entitled 'The Heavens without God', lectures for the local intelligentsia on cosmology and the origin of life and a theatre production by local youths devoted to the trial of Galileo, 'The Great Heretic'.<sup>73</sup> Attempts were also made to improve the scientific credentials of cadres of propagandists, with the establishment of the first 'Universities of Scientific-atheism' in 1959. The Moscow Oblast' university began work in October 1959 and met once a month for six hours, allowing propagandists to hear three or four lectures by leading scientific spokesmen on the most topical issues of the day. Amongst the speakers in November and December 1959 were Arnosht Kol'man on cybernetics and Correspondent of the Academy of Sciences A.M. Obukh on rocketry. The 'students' at the 'university' were intended to be 220 local propagandists, of whom 150 were drawn from 'Znanie', 30 from the Komsomol and 40 from the propaganda cadres of the Red Army. Such 'universities' may well have been productive in keeping propagandists' scientific knowledge up-to-date, but it seems unlikely that similar events organised further away from the capital would have attracted such high-profile speakers.<sup>74</sup>

Given the failure to attract genuine scientists as atheistic spokesmen, one alternative was for fictional scientists to be created who could be relied upon to faithfully follow the Party line. Such an approach was taken in Grigorii Natanson's award-winning 1963 film *Vsë Ostaetsia Liudiam* (already discussed in Chapter Two), in which Nikolai Cherkasov's dying Academician Dronov debates religion, mortality and morality with his brother-in-law, the saturnine Orthodox Father Serafim, played by A. Popov. The discussion is conducted over a prolonged game of chess, and presented as a friendly discussion between two aged members of the intelligentsia; the reviewer for *Nauka i Religiiia* made much of the fact that Serafim was not the usual stereotypical bigoted parish priest, instead being urbane, intellectual and a

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<sup>73</sup> V. Konovalov, 'Vechera Doma Ateista' in *Trud* 18th April 1959, p.2

<sup>74</sup> Teaching Plan for Moscow Oblast' University of Scientific-atheism (1959-60): TsGAMO f.7431/op.1/f.34b/l.1-6

sincere promoter of Soviet peace propaganda abroad.<sup>75</sup> However, despite his respect for Serafim, Dronov's own belief in the moral potential of mankind remains absolutely unshakeable, and he dies still refusing to let Serafim hear his confession, content in his belief that humanity, and his own life, requires no divine justification. It must be noted that, even in this situation, science does not enter the discussion, which instead revolves around the morality of everyday people and the history of the church (there is mention of the Spanish Inquisition which, as we will see later, is characteristic). Neither Dronov nor Serafim seek scientific evidence for their views, and despite the fact that Dronov is supposed to be a leading physicist his atheism is rooted in his faith in people, not a 'scientific worldview'; he might equally well be a poet, an architect or a Party apparatchik.

Fundamentally, scientific-atheistic propaganda faced a major problem in that, whatever propagandists and ideologues said, scientific knowledge did not automatically make one a militant atheist. Scientists and other scientifically-trained individuals, such as teachers, were happy to explain science to the public, but were generally content for such work to speak for itself in terms of 'worldview'. It was left to trained atheistic ideologues to tie themselves in knots in articles and lectures, explaining why their audiences should draw philosophical conclusions from research which their subjects, including geniuses such as Einstein, Planck and Heseinberg, had themselves supposedly proved incapable of making. It would hardly be surprising if their audiences were bemused and unconvinced by such arguments.

## **THE TARGETS OF SCIENTIFIC-ATHEISTIC PROPAGANDA**

It has long been acknowledged in the literature on post-war Soviet anti-religion campaigns that some denominations, notably sectarians, Uniates and Catholics, tended to suffer greater persecution than the Russian Orthodox Church. This was undoubtedly reflected in scientific-atheistic propaganda, which focused the vast majority of its fire on spokesmen of foreign churches, especially those representing the Vatican.

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<sup>75</sup> M. Semenov, 'Pobeda Dronova' in *N&R* February 1964 (No.2), pp.90-1; for other, uniformly positive reviews, see M. Dolgopolov, 'Chelovek Pobezhdaet Smert'" in *Izvestiia* 25th September 1963, p.3, 'Fil'm o Sovremmenike' in *Pravda* 23rd October 1963, p.4, P. Markov, 'Iskusstvo Bol'shogo Khudozhnika' in *Pravda* 1st February 1964, p.4; one reviewer identified the debate between Serafim and Dronov as the one weak scene in the film, A. Polovnikov, 'Bessmertie Dronova' *Literaturnaia Gazeta* 19th October 1963, p.1

This may have been partially imposed by the subject matter; the most famous clashes of science and religion had occurred in Catholic countries and the responsibility of the Russian Orthodox Church, as opposed to the tsarist regime, for repressing science within the Russian Empire, was often difficult to establish. It is also probably true that this imbalance in propaganda reflected the broader anti-Catholic prejudices of some atheist critics. As will also be shown, scientific-atheistic propaganda focused on attacking foreign religious spokesmen due to an awareness that Western propaganda was becoming increasingly accessible to those living within the USSR.

Prior to the July 1954 anti-religion decree popular articles on major scientific figures did not take an overtly anti-Catholic line. During late 1953 and early 1954 the popular science journal *Znanie - Sila* published articles on Copernicus and Galileo (two of the most prominent 'progressive' martyrs) that made only passing comment on the troubles their work had provoked in the Vatican.<sup>76</sup> After the July and November 1954 decrees such chances to drive the point home would not be allowed to pass unnoticed, and in the case of *Znanie - Sila* virtually the only articles it published after 1954 on anti-religious themes were biographies of scientists who had fallen victim to Catholic 'obscurantism'. These were written by K. Reidemeister and focusing on individuals such as Pascal and Roger Bacon. Even in cases where the subject of the article came under attack from a non-Catholic denomination, and this was made clear in the text, the illustrations which accompanied the article tended to portray a Catholic priest, often foaming at the mouth as they denounced a mild-mannered scientist from the pulpit, as was the case with an article on Edward Jenner.<sup>77</sup> An article for the journal even held the Catholic Church responsible for instigating the Scopes Trial, noting that the charges presented during the case were based on the Bible, a holy book for 'millions of Catholics' and, almost incidentally, 'other Christians.'<sup>78</sup> Such a skewed perspective was occasionally criticised; the reviewer of a collection of articles entitled *Nauka i Religiiia*, issued by 'Znanie' in 1957, did

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<sup>76</sup> A.A. Mikhailov, 'Velikii Pol'skii Uchënii' in *Z-S* September 1953 (No.9), pp.1-3 and A. Astrov, 'Tvoret's Teleskopa' in *Z-S* March 1954 (No.3), p.33

<sup>77</sup> K. Reidemeister, 'Tragediia Bleza Paskalia' in *Z-S* December 1954 (No.12), pp.17-19, 'V Kazemetakh Bastilii' in *Z-S* February 1955 (No.2), pp.16-20, 'Doktor Mirabilis' in *Z-S* June 1955 (No.6), pp.12-20, 'Otkrytie Eduarda Dzhennera' in *Z-S* August 1955 (No.8), pp.33-6

<sup>78</sup> M. Astrov, 'Mirozdanie po Legendam i v Deistvitel'nosti' in *Z-S* September 1954 (No.9), pp.1-5

question why three articles focused on Catholicism while only one dealt with Russian Orthodoxy.<sup>79</sup> Nonetheless this imbalance usually went uncommented upon.

The pantheon of martyr-scientists and victims of Catholic obscurantism was dominated by two individuals, who appeared regularly in scientific-atheistic articles and were rarely absent when the subject was the space programme or astronomy: Galileo and Giordano Bruno. The first radio broadcast on scientific-atheistic themes after the official renewal of anti-religious activities in 1960 was a play based upon the persecution of Giordano Bruno who, waiting in prison to be burnt at the stake, spits: 'Monks! We should destroy them as the curse of our age, like caterpillars or bugs, kill them like scorpions and poisonous snakes!'<sup>80</sup> The Academy of Sciences also made a concerted attempt to make use of the 400th anniversary of Galileo's birth in 1964 for atheist propaganda, with a republication of his works, a biography produced by B.G. Kuznetsov and a special issue of the academic journal *Voprosy Istorii Nauki i Tekhnologii* devoted to the scientist. It was noted at the time that the West would focus on 'the personal gifts of Galileo and aspire to show his scientific activity as a trend within Medieval scholasticism, reducing the responsibility of the Church for the persecution of Galileo' and that Soviet propaganda must counter this.<sup>81</sup>

The problems inherent in focusing on such controversies, distant both geographically and historically, was demonstrated when two prototypes for a textbook on astronomy were examined by the Ministry of Education in February 1961, while the new anti-religion campaign was gathering pace. The first, written by F.Iu. Zigel' and V.A. Shishakov, was criticised for ignoring the issue of 'worldview' and specifically for its failure to adequately cover the struggle of Copernicus against the Catholic Church by means of illustration. However, the other prospective manuscript, the updated version of an earlier text by Boris Vorontsov-Vel'iaminov, was criticised for focusing on the struggle of Copernicus against the Catholic Church, rehashing arguments which were supposedly 400 years out of date, and granting 'attention to unrealistic idealistic views of cosmogony.'<sup>82</sup> Clearly, popular science writers were damned if they did and

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<sup>79</sup> F.N. Oleshchuk, 'Aktivizirovat' Nauchno-Ateisticheskuiu Propagandu' in *Voprosy Filosofii* August 1959, p.153

<sup>80</sup> Radio Broadcast, 16th February 1960, 'Put' v Bessmertie': GARF f.6903/op.12/d.419/l.534-66

<sup>81</sup> Meeting of the Academy of Sciences Publishing Board, 30th August 1963: ARAN f.2/op.1-63/d.83/l.1, Notes of I.B. Pogrebysski, 22nd January 1964: ARAN f.2/op.1-63/d.83/l.13-14

<sup>82</sup> Session of the Physics Education-Methodological Council of the RSFSR Ministry of Enlightenment, 23rd February 1961: GARF f.A-2306/op.75/d.1869/l.75-80

damned if they didn't; outdated attacks on the Renaissance papacy were simultaneously agreed to be superfluous and utterly essential to any school textbook on astronomy.

Were religious leaders actively seeking to reconcile science and religion in the way that atheist propagandists apparently believed they were? Generally 'idealists' who 'perverted' science for religious ends were only publicly identified with figures from abroad, for the obvious reasons that no scientist in the USSR could openly proclaim his faith and the average Orthodox priest was unlikely to dwell on the complexities of quantum physics during his Sunday sermon. However, one atheist propagandist did report that Archbishop Luke of Crimea and Simferopol', who had received pre-revolutionary training as a surgeon and been awarded a Stalin Prize for his works on medicine, gave sermons which touched on scientific topics and that 'speaking as an idealist, using the teachings of Aristotle on form, and the conclusions of Weissman-Morganists [i.e. classical geneticists], carried it off so beautifully that people believed him.... The Pope and orthodox Weissman-Morganists would have subscribed to his point of view.'<sup>83</sup> This may not have been typical of Orthodox priests, but Agitprop also noted that, beginning in the early 1960s, the Voice of America had made a particular attempt to combine science and religion in order to counter-act Soviet propaganda, broadcasting programmes in Russian on 'The Soul and Biology', 'Doctors and Religion', 'The Religious Belief of Max Planck', 'Religion and the Investigation of Space' and 'The Possibility of Intelligent Life in Space'. The report stated that 'the Washington preachers attempt to "reconcile" science and religion' and that the Bishop of San-Francisco had insisted, refuting a *Nauka i Religii* article, that the church had no problems with space exploration or the concept on life on other planets. The programmes also demonstrated the religiosity of 'progressive' Soviet scientific heroes such as Lomonosov, Einstien and Planck.<sup>84</sup>

It is clear from this, and from mentions of *samizdat* made earlier, that Soviet atheistic propagandists were no longer operating in a void by the early 1960s, but had to defend themselves against a new influx of religious propaganda, produced both at home and abroad, which denied the basic tenet of scientific-atheistic ideology; that scientific knowledge, by its very nature, made religious belief untenable.

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<sup>83</sup> M.V. Shkarovskii, *Russkaia Pravoslavnaia Tserkov' i Sovetskoe Gosudarstvo* p.207, Theoretical 'Znanie' Conference on the Causes of the Tenacity of Religious Vestiges in the USSR, 18-20th January 1960: GARF f.A-561/op.1/d.400/l.102

<sup>84</sup> Kharmalov to CC CPSU, 21st February 1963: RGANI f.5/op.15/d.20/l.165-73

The Catholic Church, as the most visible religious opponent of the USSR abroad, and the most consistent enemy of scientific progress (at least in the popular imagination) thus became a target for atheistic propaganda out of proportion to its influence within the Soviet Union. However, propagandists and educators increasingly began to question how relevant it was to repeat arguments that were both outdated and, quite probably, seen as irrelevant by the non-Catholic population.

### **A MATERIALIST WORLDVIEW?**

A further problem that must be acknowledged with the Soviet attempt to develop a materialist worldview was that, as the 1950s wore on, the public's interest in science increased and so did the need of the popular scientific media to provide them with novelty. Much of what had passed for 'materialist' scientific propaganda had always been imbued with a highly irrational or mystical bent (the cases of Lysenkoism and the space race are significant in this respect, and are covered in other chapters). However, there were also numerous occasions where 'materialist' science began to stray into the dangerous territory of popular folklore and mythology, risking its own scientific credibility and providing valuable material for those who did not believe in a strictly materialistic worldview. Furthermore, attempts to impose a materialist worldview often failed to convey that science was methodologically different from religion, therefore hindering the development of a 'scientific worldview'.

Science was usually presented in Soviet propaganda as a static body of received knowledge and universally-recognised achievements, rather than a dynamic method for constructing and assessing theories of the surrounding world. The radical changes of orthodox scientific opinion that occurred in the USSR during this period led to hasty retroactive rewriting of scientific controversies, but audiences were very rarely given the impression that science was an ongoing debate, instead being given the impression it was a body of doctrine. Contradicting Western interpretations of science, Soviet speakers and authors tended not to rely on scientific evidence, instead resorting to clichéd formulas, of which the following is a typical example: 'Science gives irrefutable proof that the universe was never created and could not have been, that

the universe is eternal, having neither beginning nor end.’<sup>85</sup> It was rarely felt necessary to describe in depth what this ‘irrefutable’ proof was. One lecturer commented that speakers should not get involved in scientific debates:

Scientists do not know how to prove to the people the significance of hypotheses and theory, as was shown when Comrade Levin read a lecture on the origin of the Earth and planets. This lecture should not have been read, and was unsuccessful, because the impression was created that Shmidt’s theory [of the formation of the Earth] is good but, well, there are other opinions, and simple people don’t want to know what is unclear in science, they want to know what is clear.<sup>86</sup>

Occasionally ‘Znanie’ did try to counter this, noting in a 1956 decree devoted to science propaganda that ‘Lecturers, with rare exceptions, do not demonstrate the methods of scientific investigation, the path by which scientists come to this or that conclusion. However, one of the features of the scientific worldview, distinguishing it from anti-scientific idealistic and religious worldviews, is precisely that it is not based on blind belief but on proof, received via statistical analysis, numerous experiments and observations.’<sup>87</sup> However, ‘Znanie’ also warned its lecturers repeatedly that they should not include in their lectures any ‘discussion topics’, a view put most strongly in an article by Fëdor Oleshchuk:

When a scientific hypothesis takes the place of truth, then the audience will suddenly find out about the existence of different views in science, and only religion can be the winner from this. The *antireligioznik* must be firmly convinced that science, whatever difficulties stand before it in the resolution of certain problems, has already produced a huge stockpile of inarguable facts, which can successfully be used to beat religious dogma, to crush religion, to form it to retreat further and further back.<sup>88</sup>

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<sup>85</sup> I.I. Potemin, ‘Nauka Nesovmestima s Religiei’ in *N&Zh* December 1954 (No.12), pp.4

<sup>86</sup> ‘Znanie’ Conference on Raising the Qualifications of Republican Workers of the Society, 18-19th June 1959: GARF f.9547/op.1/d.1156/l.79-80

<sup>87</sup> ‘Znanie’ Presidium Meeting of 17th June 1956: GARF f.9547/op.1/d.1067/l.152

<sup>88</sup> F.N. Oleshchuk, ‘Aktivizirovat’ Nauchno-Ateisticheskogo Propagandu’ in *Voprosy Filosofii* August 1959 (No.8), pp.149-53

Obviously the idea that science was a dynamic, on-going dialogue could scarcely be combined with this dogmatic insistence on preaching 'truth', to the Soviet public.

Quite apart from this there were times when 'materialist' propaganda strayed into the murky waters of pseudo-science, which the Soviet press claimed was the exclusive province of the Western gutter-press. Extra-sensory perception was to become a staple of popular science reporting in the USSR in the 1960s and was first broached in *Znanie - Sila* by science-fiction writer Gleb Anfilov in December 1960. Anfilov's article gave credence not only to ESP but also to precognition (with reference to Upton Sinclair's supposedly-psychic wife). Anfilov carried out interviews with numerous scientists, some of whom refuted the idea and one of whom, presumably referring to religious texts, replied: 'Individual instances of the direct transfer of thought between human beings have been known for millennia.'<sup>89</sup> The existence of ESP was also taken for granted by Professor Kolbanovskii, an experienced scientific-atheism lecturer, speaking in Moscow in the autumn of 1959. Responding to a question, he told his audience that thought-transfer was 'empirically possible' and that there was 'nothing mystical or magical here, just the well-known contact between people, which may be explained on account of the bio-currents in the brain.'<sup>90</sup> The subject was to become widely discussed at philosophy seminars in Moscow and Leningrad in 1960-1 and even E.T. Fadeev, one of *Nauka i Zhizn*'s ideological watchdogs, did not deny the existence of ESP, merely counselling readers to be aware of the sensationalism that surrounded the subject.<sup>91</sup> However, an article published in *Molodaia Gvardiia* in 1963 asserted that ESP 'definitely' existed and was being developed by the CIA and the US Army for aggressive purposes. Furthermore, the authors argued that parapsychology, like cybernetics and genetics research, had been suppressed during the period of the 'cult of personality' that had been characterised by its 'crude denial of objectively-existing phenomena of the material world' in many scientific disciplines.<sup>92</sup> This theme had also been taken up by Bernard Kazhinskii, the author of *Biologicheskaiia Radiosviaz*, a charmingly naive and semi-mystical work on ESP published by the Ukrainian Academy of Sciences in 1962. Kazhinskii had been working in the field of parapsychology since the early 1920s, when he had been a researcher at the Timiriachev Academy, where he had discussed his

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<sup>89</sup> G. Anfilov, 'Peredacha Myslei - Vozmozhna li Ona?' in *Z-S* December 1960 (No.12), pp.18-23

<sup>90</sup> Lecture by V.N. Kolbanovskii at 'Znanie' Seminar on Scientific-Atheism, 20th April 1959: GARF f.A-561/op.1/d.283/l.145

<sup>91</sup> E.T. Fadeev, 'Tak Chto zhe Takoe Telepathiia?' in *N&Zh* June 1961 (No.6), pp.60-3

<sup>92</sup> E. Parnov and M. Emtsev, 'Fenomen "Psi"' in *Molodaia Gvardiia* May 1963 (No.5), pp.271-80

theories with Tsiolkovskii and the famous animal-trainer Durov. Amongst Kazhinskii's more esoteric theories was the notion that predators 'transfixed' their prey by firing beams of radiation out of their eyes. He cited anecdotal evidence for such parapsychological phenomena, arguing his 'scientific' ideas had only been neglected due to a lack of 'open creative debate and discussion' under Stalin.<sup>93</sup>

However, such unorthodox views did not go unnoticed amongst official regime spokesmen, and they were roundly criticised by the Marxist philosopher of science, Pëtr Fedoseev, in his keynote speech at the Academy of Science's general meeting devoted to ideology, held in early July 1963. Having criticised over-enthusiastic theorising on the subjects of cybernetics and the Tunguska meteorite, Fedoseev stated it was 'premature' to have published 200,000 copies of a pamphlet on extra-sensory perception, a subject that was still at the stage of 'preliminary discussion' amongst specialists. He concluded: 'Propaganda of a materialist worldview must rely on genuine achievements of science.'<sup>94</sup> Soviet ideologues were right to be concerned about the influence of such seemingly harmless crackpot works. How was the average Soviet reader meant to distinguish the old-fashioned superstitions their grandmothers had brought them up to respect from the newly-minted pseudo-science apparently supported by the regime's own propagandists? Furthermore, what good was dialectical materialism as a scientific philosophy, if it condemned the slightest hint of 'idealism' or 'mechanism' in science but did not condemn clear pseudo-science, which had obvious roots in pre-scientific concepts of nature?

Another example of a widely-publicised story which derived more from folklore than from serious science was the case of the search for the 'Soviet snowman'. The Soviet popular scientific press initially ridiculed American-financed trips to Tibet in search of the yeti, seeing in them either attempts to spy on Communist China or 'a characteristic weakness of the bourgeois press'.<sup>95</sup> However, during 1957 scientists from the Academy of Sciences arranged an expedition to the Pamir region of Central Asia, searching for savage men described in local legends; having failed to find anything, then they attempted to whip up interest through the media, hoping to gain further funding.<sup>96</sup> Reports on their expeditions continued well into 1959, notably in *Komsomol'skaia Pravda*, with Dagestan now being considered the most likely refuge

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<sup>93</sup> B.B. Kazhinskii, *Biologicheskaiia Radiosviaz* (Akademiiia Nauk: Kiev 1962), esp. pp. 12-15, 40-52, 73

<sup>94</sup> *Vestnik Akademii Nauk* August 1963 (No.8), p.28

<sup>95</sup> 'Taina "Shezhnogo Cheloveka"' in Z-S January 1955 (No.1), p.26

<sup>96</sup> Nesmianov and Topchiev to CC CPSU, 21st February 1958: RGANI f.5/op.35/d.73/l.8-9

for such savages. This produced a predictably offended response from the Party leadership and intelligentsia of Dagestan, furious as being selected as, implicitly, the most backward place in the Soviet Union. The obkom secretary called the reports, promoted by individuals in the Academy of Science, ‘anti-scientific’ with ‘fruitless, mercenary goals’ and stated they were ‘based, on the one hand on the ignorant inventions of malignant people, refuted by fact, and on the other on the conscious use of the superstitions of the past, about the existence of spirits or phantoms in the mountains.’<sup>97</sup> The editors of *Komsomol'skaia Pravda* and numerous other papers had to be reprimanded in late 1959 regarding the story but, despite the fact the Academy’s Commission on the Snow-Man had been officially dissolved in 1958, the topic continued to provoke interested questions from radio listeners as late as 1963.<sup>98</sup> The story also attracted the attention of lecturers from ‘Znanie’, one of whom, a candidate of technology, was reproached for a 1959 lecture entitled ‘On the Trail of the Snowman’, which also drew on materials on the space-race and spoke of the possibility of active volcanoes on the Moon. Although a reviewer took it for granted that a humanoid ‘snowman’ existed, he grumbled that the lecture should contain more Darwinian theory to give it ‘worldview significance’ and concluded that it was ‘not entirely clear why the lecturer is occupied by the problem (or secret, as she writes) of the snowman, and not questions of technological progress, as seriously decreed by the last plenum of the CPSU.’<sup>99</sup> While this long-lived story may have been unusual in provoking such indignation and controversy it was not an isolated example of ‘serious’ scientists taking the claims of traditional communities at face value in the popular science press. For example, the exaggerated claims of Caucasian villagers to extreme longevity were also reported as fact on a regular basis in articles devoted to the search for new medical cure-alls.

These examples demonstrate how blurred the line between ‘religion’ and ‘materialist science’ could become when reported in the popular scientific press. This was recognised at the highest levels of the ideological establishment: Fëdor Il'ichëv, criticising popular science writing for its lack of ideological vigilance in November 1963, noted that many Soviet citizens had a worldview like a ‘scattered mosaic’,

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<sup>97</sup> P. El'darova to CC CPSU, 3rd October 1959: RGANI f.5/op.34/d.53/l.65-7

<sup>98</sup> Report of K. Rybakov and K. Zarodov, 22nd December 1958: RGANI f.5/op.34/d.53/l.95, Annual Review of Letters from Radio Listeners: GARF f.6903/op.10/d.34/l.157; one researcher continued to describe this research in the popular press until at least 1964, hoping ‘only to “rehabilitate” a scientific problem that has fallen “victim” to the knights of sensation’: see B. Porshnev, ‘Is Neanderthal Man Living Today?’ in *CDSP* Vol.16, No.18, pp.19-20, originally in *Nedelia* No.17, April 17th-25th 1964, pp.22-3

<sup>99</sup> Review of Lecture-Texts 1957-1960 (June 1959): TsGAMO f.7431/op.1/d.8a/l.53-5

combining elements of both science and religion without cognitive dissonance.<sup>100</sup> It is notable that many of the ideas that developed in the 1970s into what Vitalii Bezrogov terms ‘opposition cults to the state’s atheism’ (bioenergetics, parapsychology, yoga, UFOs) had emerged in the context of the atheistic propaganda of the Khrushchëv era.<sup>101</sup> It is also notable that a work published on popular science writing in the late 1970s spent far more time emphasising the role of such work in combating popular superstitions and myths arising from ‘science’ than it did in focusing on the role of popular science writing in confronting formal religion and idealistic philosophy.<sup>102</sup> A regime that favoured didacticism over fostering critical thought had far more in common with traditional established religion than it cared to admit. Additionally, the attempts of many professional scientists to garner prestige, attention and funding through exaggerated claims and half-baked speculation undermined the efforts of those who sought to educate rather than entertain the audience via popular science propaganda. Therefore the ‘dialectical materialist worldview’ which scientific propaganda was supposed to encourage was undermined by both its methodology and the subject matter that its official spokesmen sought to publicise.

## CONCLUSION

Science propaganda had always played a major part in efforts by the Bolsheviks to reduce the influence of organised religion, and rural superstition, over the population. It is hardly surprising that in the 1950s, when Soviet science was enjoying such visible successes, the regime decided to emphasise the role science had in combating ‘religious dogma’. However, scientific-atheistic propaganda proved to be a dismal failure; the level of popular belief did not fall and signs of a religious revival could be detected amongst young, urban populations who had previously been believed to be largely free from ‘vestiges of the past’. Furthermore, what popular anti-religious sentiment did exist was not grounded in a ‘materialist worldview’ but in traditional anti-clericalism, which focused on the alleged corruption and drunkenness of the parish clergy. The failure of propaganda meant the regime had to resort to violence, coercion and repression,

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<sup>100</sup> Speech to the CC Ideology Commission Meeting on Scientific-Atheism, 25-26th November 1963: RGANI f.72/op.1/d.9/l.35, 69

<sup>101</sup> Vitalii Bezrogov, ‘Mezhdú Stalinym i Khristom’

<sup>102</sup> V.S. Allaiarova and L.N. Kogan, *Nauchnaia Populiarizatsiia i Sotsialisticheskaiia Kul'tura* (Nauka: Moscow 1979), pp.68-9

especially after 1960, in its attempts to combat religious belief. Even these extreme measures enjoyed only the most superficial of successes.

The premature 1954 anti-religion campaign had resulted in a declaration that atheistic propaganda needed to be more grounded in the natural sciences and take a less aggressive stance towards believers. However, such an approach provoked dissent amongst those who took primary responsibility for scientific education and propaganda; professional *antireligiozniki* resented the implied criticism of their old methods, science teachers wished to avoid too ideological a stance in their classrooms and the majority of scientists showed no desire whatsoever to get involved in atheistic propaganda. Therefore attempts to promote a more active campaign against religion in the late 1950s provoked no enthusiasm from propagandists, and the launch of the journal *Nauka i Religii* in 1959 did nothing to counter this. The articles it contained tended to be lifeless and repetitive and the journal itself lacked direction, consistently failed to attract qualified authors and was rife with corruption and incompetence.

However, the problems with scientific-atheistic propaganda were not only organisational, but had deeper roots. First, the simplistic ideological dichotomy of 'science versus religion' adhered to by propagandists failed to hold up under even the briefest scrutiny, leading propagandists into confused and pedantic biographical analysis of famous scientists that muddied the point they sought to make. This was not helped by the focus of much scientific-atheistic propaganda on foreign theologians and scientists, especially those who were supported by the Vatican, which rendered it irrelevant to the majority of believers within the USSR itself. Finally, the increasing sensationalism of popular science journals counter-acted 'materialist' propaganda by appearing to give scientific credence to popular folklore and mythology. Therefore much of popular science propaganda spent its time attacking the beliefs of foreigners, while failing to make a consistent attack on the popular beliefs of the majority Russian Orthodox population.

All these flaws were acknowledged at various times by propagandists themselves, but no serious attempt could be made to resolve them while propagandists held to the simplistic notion that scientific education should automatically lead to a decline in religious belief. Although, by the mid-1960s, a few brave souls dared to admit that the tenacity of religion stemmed from something other than ignorance, the real reasons for religious survival could not be admitted without undermining the ideological legitimisation of the regime itself. Therefore well-educated, scientifically-literate lecturers, writers and propagandists had

to expend much time and effort on producing propaganda which clearly failed to inspire either them or their audiences and made absolutely no progress towards its goals.

## CHAPTER FOUR:

### LYSENKOISM AND THE CULTURE OF THE THAW

Lysenkoism has become one of the twentieth century's most notorious examples of scientific fraud, its notoriety only rivalled by that of the Piltdown Man affair. However, the tyranny of Lysenko over Soviet biological science is often seen as the more significant and resonant of the two cases, regularly being cited as an example of what happens when political authorities attempt to determine scientific truth. Lysenkoism also has a significance in the history of the Soviet Union that goes beyond the narrow boundaries of the scientific community. The struggle against Lysenko became a rallying point for the intelligentsia, whose victory over the demagogic fraudster in 1964 was one of the most dramatic achievements of the Thaw. It is ironic that this victory could only be achieved after the overthrow of Khrushchëv himself, the man usually regarded as the architect of liberalisation in the Soviet Union.

There have already been numerous studies of Trofim Denisovich Lysenko, many of which were written prior to *glasnost* and were thus forced to rely on non-archival materials. However, the best of these works, including those by David Joravsky, Valery N. Soyfer, Nikolai Kremmentsov and Nils Roll-Hasen, all focus their attention largely on Lysenko's rise to power, and display relatively little interest in his survival into the Khrushchëv era.<sup>1</sup> Such an approach may be informed by the fact that these scholars find the rise to dominance of a 'false science' inherently fascinating, while regarding its defeat as inevitable and thus of little intrinsic interest. Whether this is true or not, it is remarkable that no archivally-based study of Lysenkoism after 1953 has yet been attempted.<sup>2</sup>

All existing works have focused on the institutional aspects of Lysenkoism, examining the purges of scientific establishments and recounting debates that were conducted behind closed doors and in narrowly-specialised scientific journals. They have only tangentially considered the way Lysenkoism was

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<sup>1</sup> David Joravsky, *The Lysenko Affair* (Harvard University Press: Cambridge MA 1970), Valery N. Soyfer, *Lysenko and the Tragedy of Soviet Science* (Rutgers University Press: NJ 1994), Kremmentsov, *Stalinist Science*, Nils Roll-Hansen, *The Lysenko Effect: The Politics of Science* (Humanity Books: New York 2005); see also Zhores A. Medvedev, *The Rise and Fall of T.D. Lysenko* (Columbia: New York 1969)

<sup>2</sup> The best non-archival studies of the topic are by Mark Adams; see his 'Biology after Stalin: A Case Study' in *Survey* Vol.23, No.1 (Winter 1977-8), pp.53-80 and 'The Soviet Nature-Nurture Debate' in Graham (ed.) *Science and the Soviet Social Order*, pp.94-137

portrayed to the broader public, beyond the narrow boundaries of the scientific intelligentsia. Joravsky notes: 'In the secondary schools and other mass media the uniform rule of Lysenkoism was successfully maintained, until the highest bosses explicitly withdrew their support from it.'<sup>3</sup> Roll-Hansen gives a similar impression of uniformity, stating: 'From about 1934 to 1964, for thirty years the central press (*Pravda* and *Izvestia*) did not accept serious articles criticizing Lysenkoism, although many were submitted.'<sup>4</sup> Rosalind Wells has demonstrated how the Lysenko controversy was reflected in the literature of the Thaw, but implies that other than in works of fiction the subject could not be publicly broached.<sup>5</sup> However, these studies ignore the fact that the public garnered their scientific knowledge from a variety of sources other than weighty novels and central newspapers. There is also good reason to suggest that covert resistance to Lysenkoism was poorly monitored by the central authorities, and that the media may therefore have presented a more varied picture than is often assumed. Recent research has demonstrated how, even at the height of the Lysenkoists' authority, selectionists on the 'periphery' continued to conduct work according to the postulates of classical genetics, dressed up in the language of Lysenko's 'Michurinist biology'. Furthermore, not only was this work completed, it earned sufficient recognition to win a Stalin Prize and a place in Lysenkoist publications.<sup>6</sup> This raises the issue of whether other members of the intelligentsia, engaged in educational and propaganda roles and removed from the centre of the institutional power structure, engaged in similar deceptions.

This chapter will therefore demonstrate how the Lysenkoists and their enemies struggled throughout the 1950s and early 1960s, and with varying degrees of success, to convey their own version of scientific truth to the Soviet public, and how they manipulated the rhetoric of the Soviet regime to do so. It will demonstrate how poorly co-ordinated ideological work was during this period, with different branches of the propaganda and education apparatus often operating in contradiction to each other in the absence of clear guidance from above. This chapter does not attempt to offer a complete picture of the vagaries of Lysenkoism from 1953 to 1964, but it does suggest that Lysenkoism, as a product of ideological demands

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<sup>3</sup> Joravsky, *The Lysenko Affair*, p.158

<sup>4</sup> Roll-Hansen, *The Lysenko Effect*, p.291

<sup>5</sup> Rosalind Wells, 'The Genetics Dispute and Soviet Literature' in *Irish Slavonic Studies* Vol.1, No.1 (1980), pp.20-42, esp. pp. 22, 27

<sup>6</sup> O.Iu. Elina, 'Mezhdu Nauchnoi Teoriei i Sel'skokhoziaistvennoi Praktikai: Seleksionery i Lysenko (1948-1955)' in M. Khainemann and E.I. Kolchinskii *Za 'Zheleznym Zanavesom': Mify i Realii Sovetskoi Nauki* (Dmitrii Bulanin: St. Petersburg 2002), pp.376-392.

rather than of genuine scientific discussion, can perhaps be best understood by examining it in the sphere of propaganda and the mass media.

### THE HISTORY OF LYSENKOISM PRIOR TO 1953

Trofim Lysenko had first risen to prominence in the late 1920s, having been 'discovered' by the world-renowned Soviet botanist and geneticist Nikolai Vavilov, who wanted to demonstrate his support for the Party's ambitious agricultural projects. Lysenko's work, based on the rapid transformation of the characteristics of crops through 'vernalisation', quickly drew the attention of the popular press. This was partially due to his own humble peasant background and partially due to the strident claims he was prepared to make for his simplistic techniques, the economic viability of which remained dubious. Lysenko was editing his own journal by 1932, and in 1934 he began his fateful partnership with Isaak Prezent, a dogmatic Stalinist philosopher of science who began the work of refashioning Lysenko's disparate ideas into a coherent, 'Marxist' school of biology. Just as Stalin sought to validate his own ideological tenets with the term 'Marxism-Leninism', so Lysenko and Prezent termed their 'scientific' school 'Michurinism' after the respected fruit-breeder, Ivan Michurin. This was despite the fact that Michurin, prior to his death in 1936, had neither made any theoretical contribution to genetics nor voiced any support for Lysenko.

Encouraged by Prezent, Lysenko argued that contemporary Mendelian genetics, which had reached a comparatively high stage of development in the USSR by the mid-1930s, was fraudulent. Lysenko drew on a traditionally strong Lamarckist strain in Russian scientific thought to claim that acquired characteristics were passed from parents to offspring, allowing for the rapid transformation of both plants and animals, provided their environmental conditions were correct.<sup>7</sup> He denounced the idea of distinct genes playing a vital role in inheritance, arguing that this was a way for 'idealists' to rescue the idea of an eternal, immutable soul. He also claimed that Mendelian genetics was inherently 'random', denying human beings the possibility of understanding the process of inheritance. Furthermore, Lysenko argued that geneticists were not fully committed to the demands of the Soviet economy, as they were ideologically suspect and

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<sup>7</sup> On Lamarckist trends in pre-revolutionary thought, see Daniel P. Todes, *Darwin without Malthus: The Struggle for Existence in Russian Evolutionary Thought* (Oxford University Press: 1989)

incapable of understanding the world outside the walls of their laboratory. A number of debates were conducted between Lysenkoists and classical geneticists during the mid to late 1930s, in which the ideological apparatus of the Central Committee, headed by the philosopher Mark Mitin, came to back the Lysenkoists. The late 1930s were to see the Soviet genetics community decimated, as many 'bourgeois' scientists, most notoriously Nikolai Vavilov, were sent to their deaths in the gulag. Nonetheless, despite Lysenko's increasingly visible role within both the Soviet scientific establishment and Soviet public discourse from 1935-6, the study of classical genetics did continue in the USSR.<sup>8</sup>

Recent work by Nils Roll-Hansen has emphasised that, in the 1930s, there still remained doubts about how best to reconcile Darwinism and Mendelian genetics and that many respected biologists remained sceptical of the extreme claims put forward by classical genetics, which remained a 'young and overconfident special discipline'; in such an environment, 'the early work of Lysenko, in spite of weaknesses that are easy to see in retrospect, falls within acceptable standards of the time.'<sup>9</sup> Roll-Hansen notes that some of the theories put forward by Lysenko in the early 1930s were taken seriously by respected figures in the international scientific community at the time, and indeed some of the vocabulary he introduced into agronomy is still used today. The issue was not, as Roll-Hansen puts it, Lysenko's poor scientific judgement, but that a combination of political expediency and the Bolsheviks' crudely utilitarian approach to science led to a collapse of the usual criteria for scientific proof.<sup>10</sup> However, such a defence cannot be mounted for Lysenkoism in the late 1940s, by which time classical genetics had emerged as a mature discipline on the basis of the 'modern synthesis' and Lysenko had developed a series of new theories that clearly conflicted with universally-accepted scientific principles. It is notable that by 1948 the only scientists outside the Eastern Bloc who took his ideas seriously were fellow travellers who felt obliged to toe the Party line.<sup>11</sup>

The last years of the Great Patriotic War had seen what appeared to be a sudden reverse in policy from the Party, as more open contacts with Western scientists were permitted and criticism of Lysenko and his allies was encouraged. Lysenko also made himself vulnerable to criticism at exactly this time, by

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<sup>8</sup> This account relies heavily on Soyfer, *Lysenko and the Tragedy of Russian Science*, pp.15-159

<sup>9</sup> Roll-Hansen, *The Lysenko Effect*, pp.17, 295

<sup>10</sup> *ibid.*, pp.282-93

<sup>11</sup> For one example, see Diane P. Baul, 'A War on Two Fronts: J.B.S. Haldane and the Response to Lysenkoism in Britain' in *Journal of the History of Biology* Vol.16, No.1 (Spring 1983) pp.1-38.

advancing his most dubious hypothesis, his so-called 'law of species formation' that led him to argue for the complete absence of intra-specific competition; Lysenko and his followers therefore began to make increasingly vigorous attacks on the 'Malthusian errors' in Darwin's own work. However, the hardening of the Cold War during 1946 and 1947 soon discouraged communication with Western scientific circles, and made more difficult the open criticism of acknowledged 'hero-scientists' within the Soviet Union. It was decided that genetics should be used to make a public example of the liberal elements within the Soviet scientific intelligentsia; according to Shepilov, Stalin denounced the international nature of scientific communication as 'an idea of spies' and was determined to put an end to it.

The decisive moment came in April 1948, when speaking at a meeting of the newly-formed 'Znanie' organisation, Iurii Zhdanov, the Central Committee's scientific spokesman, called for increased criticism of Lysenko and a more open-minded approach to classical genetics. The Lysenkoists moved to the defensive and in July and August 1948 a conference, later known as 'the August Session', was arranged by the Academy of Sciences and the Lenin All-Union Agricultural Academy (VASKhNIL). All those who had criticised Lysenko, or even failed to support him sufficiently vocally, whether geneticists, cytologists or evolutionary biologists, were labelled as slavish adherents of Western 'Weismann-Morgan-Mendelism' and subjected to attacks that bordered on being accusations of treason. Stalin personally edited Lysenko's concluding report and the conference received press coverage to rival that of a Party Congress. Lysenkoism was thus enforced as the official scientific ideology of the Soviet Union and a vigorous purge of scientific institutions followed, with Lysenkoism imposed on school and university curricula. Lysenko now felt increasingly free to comment on agricultural issues he knew nothing about, including the use of fertilisers, and a grand plan for the transformation of the steppe, the 'Stalin Plan for the Transformation of Nature' was launched, based on his erroneous theory of species formation. Lysenko's success fostered numerous fraudulent claims in the biological sciences, including those of Olga Lepeshinskaia and G.M. Bosh'ian, who claimed to be able to produce living matter from non-living materials. Over the next few years press campaigns and conferences, modelled on those conducted in biology, were organised in physiology and chemistry, and by 1950 Lysenkoism appeared triumphant, not only in the USSR but also in the fraternal republics of Eastern Europe and China, where it was similarly used as a test case for ensuring the political orthodoxy of scientific élites. Lysenko became more visible to the Soviet public than ever before, and

foreign writers, including Bertold Brecht and George Bernard Shaw, were moved to write works praising or defending his scientific achievements. Numerous Soviet writers penned works in praise of him, one of which was set to music by Shostakovich, and a 1950 film based on Michurin's life ensured the visibility of the new Soviet genetics in the USSR.<sup>12</sup>

However, even though the Lysenkoists' monopoly appeared complete by 1950, it was in that year that the first threat to their grasp on power appeared. The justification for new attacks on Lysenko was provided by Stalin's criticism of Marrist hegemony in linguistics, where the *vozhd'* argued that an Arakcheev regime in science 'cultivates irresponsibility and encourages arbitrary actions' and noted: 'It is generally recognised that no science can develop and flourish without a battle of opinions, without freedom of criticism.'<sup>13</sup> These were the quotations that scientists and propagandists would use time and time again in the early years of the Thaw to justify their criticisms of Lysenko. During 1951 *Botanicheskii Zhurnal*, edited by Vladimir Sukachev, began to voice criticism of Lysenko and even suggest that many of his results had been achieved by fraudulent means.<sup>14</sup> Iurii Zhdanov was told in the summer of 1952 that Stalin planned to 'liquidate the monopoly' of Lysenko, and plans were made to appoint leading classical geneticists to the board of the Lenin Agricultural Academy, which had become a Lysenkoist stronghold. However, these plans were apparently allowed to lapse when preparations for the Nineteenth Party Congress took precedence.<sup>15</sup> By the time of Stalin's death in 1953 Lysenko's position was beginning to look insecure, although his public reputation remained untarnished.

### **LYSENKOISM AFTER STALIN'S DEATH (1953-56)**

The weeks immediately after Stalin's death continued to see the great achievements of Michurinist biology trumpeted in the Soviet press and across the airwaves. However, the treatment the subject received

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<sup>12</sup> On pre-1953 works in praise of Lysenko, see Wells, 'The Genetics Dispute and Soviet Literature', p.22, and on Dovzhenko's troubled 1950 film *Michurin*, see George O. Liber, *Alexander Dovzhenko: A Life in Soviet Film* (BFI Publishing: London 2002), pp.232-8.

<sup>13</sup> I. Stalin, *Marksizm i Voprosy Iazikoznaniia* (Gospolizdat: Moscow 1950), pp.64-5

<sup>14</sup> David Joravsky, *The Lysenko Affair*, p.142

<sup>15</sup> Iu. Zhdanov, 'Vo Mgle Protivorechii' in *Voprosy Filosofii* 1993 (No.7), p.88

in the popular media in the immediate aftermath of Stalin's death was notable. Sergei Isaev, one of Lysenko's closest collaborators, broadcast one of a series of radio lectures on Michurin on 14th April 1953, which made it clear that Stalin had supported the elderly botanist and 'scientist-patriot' and that Lysenko was the natural heir to Michurin's work. However, sections of the talk referring to the August Session were edited, implying that there was now doubt, at least amongst those working in radio censorship, as to whether the decisions of the 1948 conference remained wholly in force, or whether some form of revision was imminent.<sup>16</sup> This tendency to play down the mythic significance of the August Session as a defining moment in the history of Soviet science was reinforced by the first statements on the 'cult of personality' from the Party leadership. June 1953 saw 'Znanie' remove a number of Lysenkoist pamphlets, including one on the Stalin Plan, from its release schedules, as part of a policy of excluding from publication works which 'excessively underlined the role of certain personalities in the development of the Soviet state, Soviet science and culture.'<sup>17</sup>

The scientific community appeared to have renewed faith in its ability to influence the decisions of the Party élite on scientific matters, and from mid-1953 Malenkov and Khrushchëv began to regularly receive letters from respected Soviet biologists that attacked Lysenko and his cronies. These letters often included dozens of pages of detailed scientific evidence in the form of appendices. The Head of the Central Committee's Science and Culture Section, Aleksandr Rumiantsev, reported to Khrushchëv on 14th July a specific request from the geneticist Iosif Rapoport to rebut a scientifically-illiterate article written by the Lysenkoist science journalist Gennadi Fish for *Literaturnaia Gazeta*, as the treatment in the article of 'questions of species formation was baseless and harmful'. Rumiantsev argued that Rapoport provided no new evidence which should lead to a re-examination of the events of August 1948, but he acknowledged that 'on reading Fish's article from *Literaturnaia Gazeta* the reader of *Literaturnaia Gazeta* may get the incorrect impression that the question of species formation in biological sciences is essentially resolved. The paper acted incorrectly, not having stated that the subject matter of the article "Khuduiu Travu - Iz Polia Von!" was under discussion.'<sup>18</sup> It was clear that the Party *apparat* did not yet wish to challenge the

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<sup>16</sup> Radio Broadcast, 14th April 1953: 'Velikii Preobrazovatel' Prirody Ivan Vladimirovich Michurin': GARF f.6903/op.12/d.248/l.267-75

<sup>17</sup> Kruzhkov et.al. to Suslov and Pospelov, 6th June 1953: RGANI f.5/op.16/d.625/l.55-7

<sup>18</sup> Rumiantsev to Khrushchëv, 14th July 1953: RGANI f.5/op.17/d.418/l.254

decisions made with Stalin's approval in 1948, but that it remained unconvinced by the validity of Lysenko's grand claims and wished to keep the Lysenkoists from becoming too self-assured.

However, even while this was going on, the Central Committee was considering the production of a film devoted to the life of one of Lysenko's closest supporters, Olga Lepeshinskaia. Lepeshinskaia was one of the numerous frauds who had sprung up in Lysenko's wake, an Old Bolshevik with no scientific training who claimed to be able to produce living cells from non-living material, an idea which Lysenko had incorporated into his own pseudo-scientific theories. The film was not to be 'narrowly biographical' but would show 'the combination of science and practice': 'In the film reactionary scientific dogma, which meets any innovative word with hostility and attempts to establish an Arakcheev-regime in scientific establishments, will be exposed.'<sup>19</sup> The film was never produced, as Lepeshinskaia was revealed as a fraud before it could reach the studio, but these plans demonstrate that while one branch of the state's propaganda apparatus was seeking to maintain closely-supervised dissent against Lysenko's ideas, another was pouring resources into a hagiography of one of his most ardent supporters. Some effort was made to clarify the significance of Lysenko's work in September 1953, when a rewrite was ordered of the article on Lysenko written by one of his supporters, V.N. Dmitriev, for the new edition of the *Bol'shaia Sovetskaia Entsiklopaedia*. The redrafted article retained its earlier description of Lysenko as a 'great scientist' and maintained that Lamarckism had been demonstrated to be correct at the August Session. However, the fact that the August Session had been officially sanctioned by Stalin himself was edited out. It was also emphasised that Lysenkoism was more accurately described as 'creative Lamarckism' than 'creative Darwinism' as Lysenko liked to suggest, and it was pointed out that Lysenko's work had only suggested to him, rather than objectively proven, that intra-species competition did not occur.<sup>20</sup>

Such cosmetic alterations did nothing to halt the flow of letters to the Central Committee complaining about Lysenko's institutional dominance within the scientific community and his privileged access to the mass media. The disgraced geneticist Nikolai Dubinin argued that genetics must be restored to its rightful place in order to facilitate 'a struggle with the hostile ideology of genetics widely disseminated in

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<sup>19</sup> Report to Pospelov, 7th June 1953: RGANI f.5/op.17/d.449/l.144

<sup>20</sup> Khrustov to Pospelov, 2nd September 1953: RGANI f.5/op.17/d.418/l.184, 186-9, 190-200

foreign countries.’<sup>21</sup> Another geneticist who had been denounced in 1948, Anton Zhebrak, wrote emphasising that Lysenkoists falsely claimed the support of foreign scientists, when foreigners only flocked to hear the speeches of Lysenko’s protégés abroad ‘as chemists or physicists would come to see someone who denied the contemporary model of the atom.’<sup>22</sup> A collective letter from the All-Union Institute of Fertilisers, Agrotechnology, Agronomy and Soil Science complained that Lysenko was now writing popular articles that encroached on their discipline, ‘ignoring the science of our century’ and ‘allowing serious errors.’<sup>23</sup> It appears that such criticisms provoked some sympathy from the authorities, as in July 1954 *Pravda* was allowed to publish an attack on the Lysenkoists penned by Academician Sergei Sobolev, a professor of mathematics at MGU with considerable influence in the military-industrial complex. Sobolev argued that Soviet scientists were ‘free from the narrow framework of national limitations’ and that ‘the cult of personality is alien to them, for it is known the most outstanding scientists are always children of their time’. He drew attention to those who attacked their enemies with labels like ‘Morganist’, noting that such ‘dogmatism’ and ‘narrow practicalism’ could cause ‘serious harm to the interests of the state’, and he also specifically charged Lysenko with using his influence to block publications by his opponents.<sup>24</sup> There had also been some evidence of disapproval of the Lysenkoists when they stood for election to the Presidium of ‘Znanie’ in April 1954; although only 19 voted against Lysenko, with ten delegates voting against his ideologue Laptev and nine against his ally Oparin (out of 514 delegates), this signified marked disapproval in an organisation where delegates were usually elected unanimously.<sup>25</sup> The official propagandists of Soviet science were by no means united behind the official Soviet scientific ideology that had been imposed by fiat in 1948.

The contradictory messages that gradually trickled down through the official press to teachers also caused increasing dissent in educational circles. Discussing articles in October 1953 for the staunchly Lysenkoist *Estestvoznaniye v Shkole*, intended to inform biology teachers about the latest ‘discoveries’ in biology, one of the editors complained about articles on Lysenkoism which equated

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<sup>21</sup> Dubinin to Khrushchëv and Malenkov, 23rd Feb. 1954: RGANI f.5/op.17/d.463/l.44

<sup>22</sup> Zhebrak to CPSU CC, 4th March 1954: RGANI f.5/op.17/d.463/l.57

<sup>23</sup> Collective letter to Khrushchëv, 31st March 1954: RGANI f.5/op.17/d.465/l.18

<sup>24</sup> S.L. Sobolev ‘O Nauchnoi Kritike, Novatorstve i Dogmatizme’ in *Pravda*, 2nd July 1954, p.2; Gerovitch, *From Newspeak to Cyberspeak*, p.164, states that Sobolev was able to publish this article without consulting the Central Committee’s Department of Science and Technology.

<sup>25</sup> Protocols of the Second ‘Znanie’ Congress, 7th April 1954: GARF f.9547/op.1/d.988/l.59-65

the basic elements of Michurinist biology with the basic elements of Marxist philosophy. This comparison is conducted via endless, well-known quotes.... In the discussion going on since January on the biological front, students sometimes know more than their teachers. Students come to teachers and ask them what they should be studying. The teachers stare wide-eyed - but why? Because they aren't aware of what's going on, it isn't covered in the pages of our journal.<sup>26</sup>

Even those who supported Lysenko, and owed their positions to his patronage, were now aware that they couldn't simply ignore the criticism of his work that was being mounted in more specialist journals. A second, heated meeting occurred at the RSFSR Ministry of Education in November, with Lysenkoists demanding to know why their mentor's work wasn't being republished for teachers. They were bluntly told that further republications were 'unnecessary.' Although the syllabus was not officially redrawn, it was made obvious to those present that they should stop stressing Lysenko's unique genius, leading one teacher to complain that the constantly changing syllabus was like 'a game of football. One moment it's in, and the next it's out.' A second teacher complained that de-emphasising the contributions of Lysenko, Vil'iams and Michurin to science would 'reduce the education of Soviet patriotism in students.'<sup>27</sup>

However those involved in the central apparatus of the education establishment were less keen to reopen public debate than were teachers. Writing in *Estestvoznanie v Shkole* in 1954 Professor F.A. Dvoriakin, one of the journal's Lysenkoist editors, commented that biology teachers were concerned about discussions arising as a result of publications in specialist journals, 'or, more often, rumours.' Students should only be taught 'facts', rather than being encouraged to show an interest in scientific debate, and they must be encouraged to struggle against 'fideism and the scientific lackeys of the ideology of the class-oppressors' who preached 'total war in nature.' Notably, the article lacked any footnotes, ensuring curious teachers would be unable to locate the journals which had provoked this ideological counter-blast.<sup>28</sup> This stance had to be defended at a conference later in 1954, when the Lysenkoist editors of *Estestvoznanie v*

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<sup>26</sup> Session of the Biology Education-Methodological Council of the RSFSR Ministry of Enlightenment, 9th October 1953: GARF f.A-2306/op.75/d.749/l.29

<sup>27</sup> Session of the Biology Education-Methodological Council of the RSFSR Ministry of Enlightenment, 27th November 1953: GARF f.A-2306/op.75/d.751/l.3, 62, GARF f.A-2306/op.75/d.742/l.10

<sup>28</sup> F.A. Dvoriakin, 'Teoriia Stadiinogo Razvitiia i Biologicheskaiia Diskussia' in *EvSh* May-June 1954 (No.3), pp.32-7

*Shkole* admitted that their articles had been ‘one-sided’ but that this was justified, as they ‘did not want to show that [they] shared the position of the *Botanicheskii Zhurnal* and did not consider it necessary to publicise the theory.’<sup>29</sup> However, one of the teachers present argued that Lysenko’s theories on species ‘entirely contradicted’ those of Darwin and that criticism of Darwin carried a ‘prejudicial character’, while Lysenko’s theories had been adopted too hastily, leading textbooks to downplay the significance of both Darwin and Michurin. He argued: ‘Lysenko writes polemical works for biologists, for specialists, but why put them in a textbook?’ He also noted:

When I read a popular lecture somewhere near Tikhvin, 100 kilometres from the nearest railway, I was surprised that I was asked about the inheritance of acquired characteristics. I was struck that these questions came from schoolchildren. I even remember being set a question on Mendel.<sup>30</sup>

However, such comments were unlikely to produce any constructive reaction as long as the central education establishment remained so dogmatically Lysenkoist. Meanwhile, both sides were agreed that the persistent confusion over Lysenkoism was causing a decline in teaching standards; by the summer of 1954 one Lysenkoist was describing teaching standards as ‘laughable’ due to the uncertainty over the curriculum.<sup>31</sup> This uncertainty was demonstrated in the curriculum for the 1955-6 teaching year, finalised over the summer of 1955. Due to ‘difficulties’, study of Michurinist and Lysenkoist theories were moved from the fifth to the sixth year, effectively postponing introducing new students to the topic for a year, in the hope that the issue would be resolved ‘from above’.<sup>32</sup>

The underlying tension between Lysenkoists and their opponents, who were often forced to work in the same organisations, occasionally came to the surface, as when the biologist Andrei Emme raised the issue of Lysenkoism with section leaders in ‘Znanie’ in February 1955. Emme’s mother had worked with Nikolai Vavilov, and had been blackmailed into testifying against the geneticist when her son was

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<sup>29</sup> Session of the Biology Education-Methodological Council of the RSFSR Ministry of Enlightenment, 28th October 1954: GARF f.A-2306/op.75/d.888/l.51

<sup>30</sup> Session of the Biology Education-Methodological Council of the RSFSR Ministry of Enlightenment, 9-10th December 1954: GARF f.A-2306/op.72/d.3708/l.101-16

<sup>31</sup> ‘Znanie’ Presidium Meeting, 29th June 1954: GARF f.9547/op.1/d.1000/l.167

<sup>32</sup> Teaching Plan for Biology, 1955: GARF f.A-2306/op.72/d.4565/l.3

threatened with arrest; as a result, Andrei Emme was to spend the 1950s and 1960s continually seeking to publicly expose the fraudulent nature of Lysenko's work. Facing the society's vice-chairman, Ivan Laptev, one of Lysenko's closest allies and one of Khrushchëv's personal agricultural advisors, he alleged that biological propaganda within the society was dominated by a narrow clique of Lysenkoists, such as Aleksandr Oparin, Nikolai Studitskii and Georgii Khrushchëv. He called Lysenko's theories 'theoretically and methodologically defective and without practical perspectives' and told Laptev that complex biological arguments were 'concretely explained by scientists, and not you, Comrade Laptev. Don't take too much on yourself. You are not a biologist.'<sup>33</sup> Emme wrote a letter to Nikita Khrushchëv in 1955, calling for the removal of the Lysenkoists from their positions of responsibility, and suggesting their influence rested solely on the support of dogmatic philosophers like Mark Mitin. He also included an attachment 'The Distribution of Forces in Biology' indicating the key posts that Lysenkoists held on many publications, including the *Entsiklopaedia*, *Priroda*, *Voprosy Filosofii*, *Ogonëk* and *Estestvoznanie v Shkole* as well as within the Ministry of Higher Education, 'Znanie' and the Biology Sector of the Academy of Sciences.<sup>34</sup>

The increasingly vocal criticism of Lysenko made by his opponents in 1955 was partially inspired by the approach of a significant date: the 100th anniversary of the birth of Michurin, due to be celebrated in October 1955. Those opposing Lysenko appear to have believed they had gained a victory over him by having a number of respected biologists, including Andrei Kursanov, Vladimir Tsitsin and Pavel Baranov, elected to the organising committee for the celebrations. However Lysenko seems to have quickly regained control over the preparations, by the simple expedient of ensuring those who opposed him were not informed as to when, or where, meetings of the committee were occurring. Baranov had prepared a paper for the conference which was to act as a defence of the persecuted geneticist Nikolai Vavilov, emphasising how it was he, and not Lysenko, who had first noticed Michurin and ensured his election to the Academy of Sciences: Vavilov was described in his draft speech as 'the sole geneticist' in the Academy in the 1930s and as an 'ardent patriot'.<sup>35</sup> Although the pretext for Vavilov's arrest had been privately declared 'entirely false' by an investigating committee in late 1954, nonetheless to brazenly present a victim of Stalinist repression

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<sup>33</sup> Conference of 'Znanie' Section Leaders, 4th February 1955: GARF f.9547/op.1/d.1048/l.26-31

<sup>34</sup> Emme to Khrushchëv, 25th June 1955: RGANI f.5/op.17/d.515/l.71-86

<sup>35</sup> Baranov 'K Istorii Izbraniia Ivana Vladimirovicha Michurina Pochetnym Chelnom Akademii Nauk SSSR', 9th September 1955: ARAN f.2/op.1-55/d.135/l.27-9

in such a favourable light was extremely courageous.<sup>36</sup> When Baranov was excluded from the proceedings in preparation for the anniversary, he wrote a letter to the Central Committee, which apparently became widely known in the scientific community, complaining of Lysenko's '*Arakcheevshchina*, monopolism and cult of personality' and claiming that he could not 'unite Soviet biology' or 'objectively reflect' it. However, his complaints were ignored, with reference to Lysenko's 'great services' to Soviet biology.<sup>37</sup> Not one to be discouraged, Baranov rallied dozens of biologists and other scientists to sign a collective letter to the Central Committee protesting against Lysenkoism. This protest not only emphasised the harm of Lysenkoism to Soviet science and its image abroad but indicated that, by 'casting aside' Darwinism and erecting 'teleology' in its place, Lysenkoism gave comfort to 'representatives of divine thought' and hindered the work of atheist propagandists.<sup>38</sup> Unsurprisingly, such a collective protest could not be publicly acknowledged, and the Michurin centenary celebrations in late 1955, widely trumpeted in the Soviet press, totally ignored it. Instead, numerous publications, including a special edition of the popular science journal *Znanie - Sila*, uniformly and uncritically heaped praise on the work of the Lysenkoists whilst celebrating the defeat of the 'Weismann-Mendel-Morganists'.

However, the apparent victory of the Lysenkoists in making the Michurin anniversary an excuse to reiterate their 'achievements' did not go unchallenged. Andrei Emme, on 7th October 1955, gave a speech before a group of agricultural students in Odessa that provoked an article in the local paper signed by numerous Lysenkoists, accusing him of being 'two-faced'. A report for 'Znanie' noted: 'The article describes how, having arrived at the House of Scientists for Emme's lecture, they were met with open propaganda of Mendel-Morganism.' Emme was rebuked, a more 'qualified' lecturer was dispatched to Odessa to repair the damage, and the society noted that 'Znanie' 'is not a scientific Society, where problems are discussed - in our Society problems are presented which have been confirmed by science.'<sup>39</sup> A more detailed criticism, prepared in December, and presented by the Lysenkoist Henkel', condemned Emme for ignoring Lysenko and Michurin's work in favour of foreign geneticists, but claimed his main error was in

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<sup>36</sup> On Vavilov's case after 1953 see Mark Popovsky, *The Vavilov Affair* (Archon Books: Hamden 1984), p.131

<sup>37</sup> Baranov to CPSU CC, 6th October 1955: RGANI f.5/op.35/d.8/l.137-8, Iakovlev and Zenikova to CPSU CC, 15th October 1955: RGANI f.5/op.17/d.515/l.102

<sup>38</sup> Collective of Scientists to CPSU CC, October 1955: RGANI f.5/op.17/d.515/l.109-123

<sup>39</sup> 'Znanie' Presidium Meeting, 1st November 1955: GARF f.9547/op.1/d.1042/l.247-9

presenting 'discussion questions' in front of an unprepared audience. Emme responded by criticising the Society for disseminating ideas that had already come under fire - including those of Bosh'ian and Lepeshinskaia - and editing previous stennogrammes to undermine his defence. Accused of having made a political error he responded:

Obviously my political error is that I exposed the recommendations of Bosh'ian, Lepeshinskaia and Lysenko, which are in practice harmful. Or is my political error that I informed a scientifically-trained audience of this criticism?... What person supports the views they supported in 1950, now in 1955? We are scientists, and must change our views under the pressure of new facts.

When Ivan Laptev replied that propagandists must 'defend Marxism their whole lives', Emme brazenly replied that 'postulates which were accepted 20-30 years ago in Marxism have also changed... You, as a political economist, must know that Comrade Laptev.'<sup>40</sup> Emme tried appealing to the Central Committee, but his pleas were ignored.<sup>41</sup> The case demonstrated that at least one propagandist was, by this stage, willing to risk his career by speaking out against Lysenko. It is hard to know how many other lecturers may have chosen the course Emme did; this appears an isolated case in the 'Znanie' archive, but Emme was unique in choosing to speak before an audience he knew would respond with hostility. He was obviously hoping to provoke just the response he did, as part of his ongoing feud with the leadership of 'Znanie'. Less combative speakers may have been giving similar papers before less scientifically and ideologically informed audiences in many areas of the country.

Lysenko's apparent victory over the 1955 anniversary, and the apparent restoration of his monopolistic regime, was short-lived. Writing in January 1956 in *Nauka i Zhizn'*, V.V. Alpatov, editor of the reference journal *Biologiia*, which frequently attracted the ire of Lysenkoists by publishing foreign work on genetics, brought the attention of a wider audience to work being done abroad on chromosome theory and concluded 'in all areas of biology our foreign colleagues are carrying out important research, which must interest Soviet scientific society.'<sup>42</sup> The Lysenkoists were also increasingly eager to show that their

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<sup>40</sup> 'Znanie' Presidium Meeting, 13th December 1955: GARF f.9547/op.1/d.1042/l.299-304

<sup>41</sup> A.M. Dedov to A.P. Kosul'nikov, 3rd February 1956: GARF f.9547/op.1/d.1074/l.74-5

<sup>42</sup> V.V. Alpatov, 'Biologiia za Rubezhom' in *N&Zh* January 1956 (No.1), pp.21-2

own research had achieved international recognition, despite the fact that in 1948 they had won Stalin's support through demonstrating their 'materialist' science was opposed to that of the West. After 1955 articles by Lysenkoists demonstrating the successes of Michurinist science in the Eastern Bloc came to an abrupt halt, and the Lysenkoists began to focus on work being done in the capitalist world, especially in France and Japan, and emphasising that the 'two worlds' in biology were drawing closer.<sup>43</sup>

Despite the ringing confirmation of Lysenkoist ideas provided by the Michurin anniversary, debate continued amongst educators in early 1956. The ideas of Olga Lepeshinskaia, which were by now obviously the subject of some doubt, were raised by one propagandist at a meeting of 'Znanie' atheist lecturers, and those present were informed that although elements of her work remained experimentally unproven, she remained a 'progressive' scientist and propagandists should make use of her theories.<sup>44</sup> Within the Ministry of Education, a discussion went on in 1956 regarding what trainee biology teachers should be taught, with the Dean of Kursk University Biology Faculty arguing that teachers needed to be acquainted with basic biological laws: 'That isn't the biology we've had in recent years, but real general biology, based on generally accepted postulates, and widely-recognised by scientists.... I want to reproach the Ministry - why did it introduce unproven facts into the curriculum so quickly?' The Lysenkoist Dvoriakin, trying to present himself as a member of a persecuted minority, suggested that teaching 'Darwinism' had become 'something like being one of the last of the Mohicans.' A speaker from Krasnoiarsk Pedagogical Institute argued Dvoriakin and his allies shouldn't be so depressed by the situation in the biological sciences, as the resurrection of classical genetics was only a problem for those 'who butcher dialectical materialism.'<sup>45</sup>

The most public sign of dissent against Lysenko were speeches in February 1956 by the geneticist Nikolai Timofeev-Resovskii and the physicist Igor Tamm, who had been invited to speak at Pëtr Kapitsa's regular seminar at the Institute of Physical Problems. Timofeev-Resovskii represented an easy target for the Lysenkoists: working in Nazi Germany until 1945, before being sent into internal exile by the NKVD, he provided a convenient 'proof' of the Lysenkoists' claims that Mendelist genetics was a 'Nazi science'. His

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<sup>43</sup> See, for example, I.E. Glushchenko, 'Na Michurinskikh Torzhestva vo Frantsii i Belg'gii' in *N&Zh* March 1956 (No.3), pp.52-7 and P.A. Henkel, 'Mesiats v Italii' in *N&Zh* May 1956 (No.5) pp.52-6

<sup>44</sup> All-Russian Conference of Chairs of 'Znanie' Scientific-Atheism and Science Sections, 10th January 1956: GARF f.A-561/op.1/d.65/l.82

<sup>45</sup> Meeting of Directors of Biology Faculties at Pedagogical Institutes of the RSFSR, 28th-31st January 1956: GARF f.A-2306/op.75/d.5196/l.3-6, 33-4

speech in Moscow was attended by over 800 people, with amplifiers having to be set up outside the lecture theatre to cater for those who thronged to hear the results of his research. One of the Lysenkoists present wrote a furious letter to the Party leadership, reporting that those present were outraged that a biologist had been invited to speak at a physics seminar. He stated: 'I saw [Timofeev-Resovskii] straight after the talk at the institute. His face and eyes were full of vivid hatred.'<sup>46</sup> The Party apparatus seems to have finally realised that it was becoming counter-productive to suppress criticism of Lysenko, as it only funnelled dissent into unauthorised channels. A report stated: 'The hearing of reports on debated issues in biology without any kind of discussion is mistaken and leads to the one-sided illumination of debate on pressing biological questions.' The President of the Academy of Sciences, Nesmianov, was now instructed to organise a structured, yet limited, debate on the situation in genetics.<sup>47</sup> Despite this fact, Tamm continued to give talks in Moscow, Leningrad and Gor'kii, where he was openly contemptuous of Lysenko.<sup>48</sup> The fear seems to have been that a specialised, scientific debate was becoming politicised and encouraging the scientific élite to organise in new, unsupervised ways. Limited debate behind closed doors was being replaced by open dissent, attracting ever larger audiences, and individual letters were being replaced by mass petitions, signed by dozens of biologists and other scientists. There was the threat that a new politicised scientific élite might emerge, the very thing that the events of 1948 had sought to prevent. This was the situation when the 20th Party Congress met in February 1956 and following it, in the first obvious example of reform in the scientific community, Lysenko was removed as President of the Lenin Agricultural Academy. It seemed that his further fall from grace was imminent.

#### **LYSENKOISM AND THE ATTACK ON 'THE CULT OF PERSONALITY' (1956-62)**

It appeared to many in the scientific community that victory had been achieved over Lysenko in the wake of the 20th Party Congress. Lysenko's removal as President of the Lenin Agricultural Academy was followed by a purge of several of his supporters from the board of *Vestnik Akademii Nauk* in August, and 1956 also saw the establishment of a new laboratory of radiation genetics, headed by Nikolai Dubinin,

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<sup>46</sup> P. Kralin to A.B. Aristov, 10th February 1956: RGANI f.5/op.35/d.20/l.36-7

<sup>47</sup> Kirrilin and Cherkashin to CPSU CC, 9th February 1956: RGANI f.5/op.32/d.20/l.33-4

<sup>48</sup> Valery N. Soyfer, *Lysenko and the Tragedy of Russian Science*, p.242

at the Biophysics Institute in Moscow.<sup>49</sup> This was the first sign of the institutional rehabilitation of classical genetics, the laboratory being shielded from criticism due to its patronage from within the nuclear physics community. Reports in the popular press on the latest successes of agricultural science at the Lenin Academy during 1956 ceased to mention either Lysenko or his supposed mentor, Michurin. The months following the 20th Party Congress also saw Lysenkoism dismantled as the official scientific ideology of the Eastern European states, where its implementation had never been as complete as in the USSR, and of China, where it was abandoned after the Qingdao Genetics Symposium in August.<sup>50</sup> However, despite the fact that in later years many Lysenkoists considered 1956 the year of their undeserved ‘overthrow’, Lysenko’s supporters still held many of the key posts in the biology establishment. This remained anathema to those who had led the campaign against Lysenko since 1952 and, believing they now had the upper hand, geneticists and publicists began to press home their attack, provoking alarm from ideological watchdogs.

During 1956 the most open discussion in the press of events occurring in biology was in *Nash Sovremennik*, whose science editor was the anti-Lysenkoist Oleg Pizarzhevskii. The autumn issue of the journal saw a round-table discussion of an article critical of Lysenkoism, published earlier by Pizarzhevskii, although the printed version of the debate failed to mention the presence of Lysenko himself, who had stormed out when Dubinin and Pizarzhevskii appeared at the meeting.<sup>51</sup> Pizarzhevskii defended his charges of ‘administrative suppression’ in biology, to which the Lysenkoist I.A. Khalifman responded: ‘Is it not really shameful to see such a wide range, such a sharp mind, such a striking pen in the service of incorrect, untruthful, and therefore hopeless, work?’ The geneticist V.V. Sakharov stated in response: ‘It is time to realise that there are no “Mendelists”, “Weismannists” or “Morganists”. All these are only nicknames, so that they can utter one, or even all three, and the job is done, and no-one can defend us unless they wish to fall into that company.’ He also linked Present’s authority to ‘monopolism’ and the ‘cult of personality’, suggested that the term ‘Lysenkoism’ should replace ‘Michurinism’ and argued that philosophers of science such as Dmitrii Troshin and Georgii Platonov were in ‘the most obvious contradiction with the

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<sup>49</sup> Adams, ‘The Soviet Nature-Nurture Debate’, here at p.110

<sup>50</sup> On Poland see Waslaw Gajewski, ‘Lysenkoism in Poland’ in *The Quarterly Review of Biology* (December 1990), pp.424-33 and on China, Laurence Schneider, ‘Learning from Russia: Lysenkoism and the Fate of Genetics in China’ in Denis Fred Simon and Merle Goldman (eds.) *Science and Technology in Post-Mao China* (Harvard University Press: 1989), pp.45-68

<sup>51</sup> Soyfer, *Lysenko and the Tragedy of Russian Science* p.261

fundamentals of dialectical materialism.' Dubinin threateningly noted that Lysenkoism had not arisen as a result of scientific discussion, and that 'historical facts can only be hidden so long.' Prezent responded that Dubinin was a carrier of 'false-genetics' and told him: 'The session of 1948 was no mistake.' The article concluded with an editorial note, stating that the discussion had emphasised 'the harm done to science by the monopolistic position of one school or another....'<sup>52</sup>

A report on a meeting of Academy of Sciences workers in Leningrad, held in April 1956 to ensure that those present interpreted the results of the 20th Party Congress in the correct fashion, related a speech by the aged cytologist, Dmitrii Nasonov, who had recently been elected a Correspondent of the Academy. He 'spoke about the harm of the cult of personality in biology and the establishment within cytology of an authority created by force, that of Lysenko and Lepeshinskaia.' He described Lysenko as 'an icon whose opinions have replaced the true criteria of every scientist for scientific research - materialist observation and experimentation.' He criticised the chairman of the meeting, Academician Topchiev, when he stated the resolutions of the August Session remained in place, arguing that this would lead to the continuance of 'authoritarian practices in science'.<sup>53</sup> It was behaviour like this that confirmed the fears of those in authority; the rhetoric of the attack on the 'cult of personality' was being adopted by those wished to see the liberalisation of Soviet society occur at a faster rate than that foreseen by the Party. However, the geneticists were not alone in being able to use the rhetoric of the 20th Party Congress for their own purposes, especially as the Lysenkoists increasingly saw dominant positions in the scientific community seized by their opponents. During January 1957 the Lysenkoist K.N. Golubeva, Dean of the Faculty of Science at the Leningrad Pedagogical Institute, spoke of the 'stifling' of Lysenkoist research in schools, alleging that articles espousing Lysenko's views were now being driven out of journals and that this was due to 'vestiges of the cult of personality in the work of the editors.'<sup>54</sup>

As this demonstrates, the Lysenkoists responded to the mounting attacks against them by altering their own rhetoric to stress the purely 'scientific' justifications for their work. They now played down the nationalist and ideological elements in the articles they wrote for popular science publications, a process

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<sup>52</sup> *Nash Sovremmenik* March 1956 (No.3), pp.131-183

<sup>53</sup> D.D. Brezhnev to CPSU CC, April 1956: RGANI f.5/op.35/d.16/l.138-45, K.V. Ostrovitianov and Topchiev to CPSU CC, 28th April 1956: f.5/op.35/d.16/l.146-53

<sup>54</sup> Session of the Biology Education-Methodological Council of the RSFSR Ministry of Enlightenment, 18th January 1957: GARF f.A-2306/op.75/d.1250/l.78

that had begun before 1956. This was despite the obvious scorn shown for the Lysenkoists by the foreign scientific community, clearly demonstrated when the German Leopoldina Academy gave awards in 1959 to those who had contributed most to the development of Darwinism. Amongst the Soviet recipients of the award (Chetverikov, Timofeev-Resovskii, Dubinin, Sukachev and Shmalgauzen) there were no Lysenkoists and several were open opponents of his 'school'.<sup>55</sup> The next few years therefore saw a situation where both Lysenkoists and geneticists sought to base their legitimacy on 'universally-acknowledged' scientific truth, without a clear acknowledgement from above as to which direction was recognised as correct. This situation was formalised in the reissued *Bol'shaia Sovetskaia Entsiklopaedia*, which had to include two articles on genetics in the fiftieth, appended volume, issued in 1957, one on classical genetics by B.L. Astaurov and a section on 'Genetics - The Direction Led by T.D. Lysenko' written by Kh.F. Kushner.<sup>56</sup> Agreement on a new biology textbook for schools, E.A. Veselov's *Osnovy Darvinizma*, intended as a short-term measure until 'discussion issues' could be resolved, proved equally difficult now that Lysenkoists and their enemies could discuss the subject more or less openly. Discussing a draft text, one teacher referred to the Lysenkoist sections as similar to 'Buddhist chants', and argued the attacks on Weismann were 'vulgarised'. The speaker suggested using some of the 'beautiful Soviet literature' on classical genetics to offer both sides in the argument equal footing. Even the ardent Lysenkoists argued that the text was insufficiently sophisticated to allow students to repudiate Weismann-Mendelism, while another teacher pointed out: 'Here we have the postulates of Darwin, and here we have the teachings of Michurin and Lysenko. An amalgamation is formed, but the student will ask how to answer - as Darwin, or as Lysenko?''<sup>57</sup> A final decision on the textbook, in March 1957, ordered that it should indicate the high respect Marx, Engels and Lenin had had for Darwin, and that it should avoid stressing Darwin's Malthusian 'errors'. However a number of reviews of the text to be sent to press noted that controversial biological terms, over which the two sides could not agree, had been left undefined in the book.<sup>58</sup> The chaos within schools was mirrored at the level of

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<sup>55</sup> Valery N. Soyfer, *Lysenko and the Tragedy of Russian Science*, p.269

<sup>56</sup> *Bol'shaia Sovetskaia Entsiklopaedia* Vol. 50 (1957), pp.485-6

<sup>57</sup> Session of the Biology Education-Methodological Council of the RSFSR Ministry of Enlightenment, 1st February 1957: GARF f.A-2306/op.75/d.1251/l.18-25, 29, 63

<sup>58</sup> Session of the Biology Education-Methodological Council of the RSFSR Ministry of Enlightenment, 18th January 1957: GARF f.A-2306/op.75/d.1250/l.2, 20, 95

university education, where classical genetics was covertly introduced in several faculties, including those at Leningrad and Novosibirsk, from the late 1950s.<sup>59</sup>

While chaos appeared to rule in formal education, those who opposed Lysenko were growing in confidence. During the summer of 1957 the Moscow House of Scientists held an exhibition of translated literature, including *Evoliutsiia, Genetika i Chelovek* by the Russian émigré geneticist Theodor Dobzhanskii; this was widely publicised, despite the fact Dobzhanskii had been one of the arch-villains of the anti-Mendelian campaign.<sup>60</sup> January 1958 saw the publication in *Znanie - Sila* of an article by Nobel Prize winner Wendell M. Stanley, which took the existence of genes for granted and described the process of the recombination of chromosomes. Although it carried a statement from the editors noting that Stanley's views were not universally accepted by scientists, this was the first time since 1948 a popular article had been published in the Soviet press which took the basic principles of Mendelian genetics for granted.<sup>61</sup> This was followed by similar articles by Linus Pauling and one of Timofeev-Resovskii's research assistants, published in the same journal, later in that year.<sup>62</sup> Although none of these articles challenged Lysenko's work directly they gave a clear indication to readers that genetics research done abroad was now to be taken seriously, and they provoked a 'visit' to the editorial office by a group of the most ardent Lysenkoists, who apparently 'discussed' these articles with the editorial board. The editors promised to publish a number of articles illuminating both sides of the issue, but in the following months Lysenkoist articles were noticeable by their absence.<sup>63</sup>

Meanwhile the Lysenkoists were not idle. The editors of *Estestvoznaniie v Shkole* continued to press on with a rebuttal of the resurgence of classical genetics, irrespective of the debate going on within the education system. During January 1958 one of its editors criticised the fact that the journal ignored 'ideological problems' and that until that time the journal had not made an effort to deal with 'the disorientation caused by the propaganda of neo-Morganism on the pages of our popular press (*Uchitelskaia*

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<sup>59</sup> Mark B. Adams, 'The Soviet Nature-Nurture Debate', p.110

<sup>60</sup> 'Vystavka Amerikanskoi Nauchnoi Literatury' in *N&Zh* July 1957, p.62

<sup>61</sup> Wendell M. Stanley, 'Na Grani Zhivogo i Mertogo' in *Z-S* January 1958 (No.1), pp.5-8

<sup>62</sup> Linus Pauling, 'Krov' Cheloveka i Atomnaia Voina' in *Z-S* May 1958 (No.5), pp.8-9 and V. Korogodin, 'Pronikaiushchee Izluchenie' in *Z-S* May 1958 (No.5), pp.4-7

<sup>63</sup> 'Uchënie u Nas v Gostiakh' in *Z-S* July 1958 (No.7), p.15

*Gazeta, Komsomol'skaia Pravda, Tekhnika - Molodezh*'),<sup>64</sup> However, for reasons that remain unclear, the Party leadership decided to dramatically throw its weight behind the Lysenkoists late in 1958; on 14th December 1958 *Pravda* published a lengthy article criticising *Botanicheskii Zhurnal* for its attacks on Lysenko and for 'conducting vindictive attacks on materialistic biology, slandering Soviet life.' It described several of the Soviet classical geneticists, including Dubinin and the deceased Kol'tsov, as having 'contributed nothing significant to science', in language very reminiscent of 1948.<sup>65</sup> Lysenko spoke four days later at a Central Committee plenum, where he indicated that criticism of his work was not personal criticism, but criticism of 'the materialistic line in biological sciences', and he condemned the leadership of the Academy of Sciences for allowing the debate to continue so long.<sup>66</sup> The next day the editorial board of *Botanicheskii Zhurnal* was purged, with its membership henceforth to be made up solely of obedient Party members.<sup>67</sup> During the months that followed the anti-Lysenkoist biologist Vladimir Engel'gardt was removed as secretary of the Academy's Biology Division and Dubinin was removed as laboratory head of the newly constituted Institute of Genetics in Novosibirsk.<sup>68</sup> Mark B. Adams notes that from March 1959, for 'three or four years, there was little if any criticism of Lysenko in Academy publications as scientific administrators came to a compromise with Lysenko: 'in exchange for stilling public criticism of Lysenko, they would be able to develop their kind of biology.'<sup>69</sup> Lysenko himself was reappointed President of the Lenin Agricultural Academy in August of 1961.<sup>70</sup>

This new shift in opinion at the centre did not occur quickly enough to prevent the publication of further articles reporting on, and praising, classical genetics in the January 1959 issues of *Nauka i Zhizn'* and *Znanie - Sila*. The first was a response to a reader's question about inheritance, the answer to which was provided by Andrei Emme in accordance with the laws of Mendelist genetics.<sup>71</sup> The second was another article by Timofeev-Resovskii's assistant, V. Korogodin, which described the nature of chromosomes, but

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<sup>64</sup> Session of the Biology Education-Methodological Council of the RSFSR Ministry of Enlightenment, 30th January 1958: GARF f.A-2306/op.75/d.1395/1.3

<sup>65</sup> 'Ob Agrobiologicheskoi Nauke i Lozhnykh Pozitsiiakh "Botanicheskogo Zhurnal"' in *Pravda*, December 14th 1958, pp.3-4

<sup>66</sup> 'Rech' Akademika T.D. Lysenko' in *Pravda*, December 18th 1958, p.3

<sup>67</sup> Nesmianov and Topchiev to CPSU CC, December 26th 1958: RGANI f.5/op.35/d.72/l.224-7

<sup>68</sup> Zhores Medvedev, *Soviet Science* (Oxford University Press: 1979), p.93

<sup>69</sup> Adams, 'Biology after Stalin', p.74

<sup>70</sup> Soyfer, *Lysenko and the Tragedy of Russian Science*, p.270

<sup>71</sup> A. Emme, 'O Nasledstvennosti Cheloveka' in *N&Zh* January 1959 (No.1), pp.78-9

noted the study of chromosome theory had been neglected by Soviet scientists recently; he scathingly noted ‘their attention was directed to more simple and comprehensible things.’<sup>72</sup> The appearance of two articles so blatantly opposed to the new line established in *Pravda*, and presumably sent to press prior to its promulgation, clearly indicates that the dramatic shift of support towards Lysenko by the Central Committee came as a surprise to public scientific opinion. The leadership of ‘Znanie’, which published *Nauka i Zhizn*, met in May to discuss Emme’s article and deemed that the article was ‘incorrect’ and that the editors had not taken a correct line, by ignoring the letters of readers ‘reacting’ to it indignantly. The editor of the journal, A.S. Fedorov, was ordered to inform all his staff of this decision and to begin to publish ‘a series of articles devoted to human genetics, correctly publicising the issue.’<sup>73</sup> However, the issue of Emme’s article, and that of another ‘anti-scientific article’ was raised again, in September 1959. The second article to be criticised was an article in commemoration of the 150th anniversary of Darwin’s birth. It included a firm critique of Lamarck, indicating the gulf that existed between his ideas and that of Darwin. The article, by comparison, failed to criticise Darwin’s own ‘Malthusian errors’, while adopting the forbidden phrase ‘struggle for existence’ to describe his understanding of evolution. Adding insult to injury, it made no mention whatsoever of the Soviet contribution to developing Darwin’s work, and failed to include the usual hymn of praise to Michurin.<sup>74</sup> The editors were criticised for publishing these two articles, for having failed to publicly acknowledge their error in publishing Emme’s article and for having failed to publish a single Michurinist article in 1959.<sup>75</sup> It was obvious that this was the revenge of the society’s biology section, still staffed overwhelmingly by Lysenkoists and backed by Mitin, against the staff of the journal, which supported the classical geneticists. Even within one organisation two diametrically opposed sides were deadlocked over the issue of Lysenkoism.

However, ‘Znanie’ was not the only organisation that was prepared to find room in its publications for those espousing anti-Lysenkoist views after December 1958. Less than a year after he had been criticised by the board of ‘Znanie’, Emme published an article on genetics in *Izobretatel’ i Ratsionalizator*, the monthly journal of the Society of Inventors and Rationalisers. This article on radiation genetics made

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<sup>72</sup> V. Korogodin, ‘Kak Lechat Kletku’ in *Z-S* January 1959 (No.1), pp.21-3

<sup>73</sup> ‘Znanie’ Organisational Meeting, 19-23rd May 1959: GARF f.9547/op.1/d.1153/l.175-6

<sup>74</sup> L.Ia. Bliakher, ‘Charlz Darvin - K 150-Letiiu so Dnia Rozhdeniia’ in *N&Zh* February 1959 (No.2), pp.55-7

<sup>75</sup> ‘Znanie’ Presidium Meeting, 9th September 1959: GARF f.9547/op.1/d.1152/l.220-1

use of chromosomal theory to explain how irradiating cell nuclei produced a random assortment of 'nuclear freaks' and 'nuclear heroes' amongst offspring, the latter of which had the potential to revolutionise Soviet medicine and agriculture. While evidently opposed to Lysenko's views on evolution and genetics, Emme took care to emphasise the 'Michurinist' nature of such research. This article followed earlier reporting in the journal by the geneticist Vladimir Engel'gardt, recently deposed as the Director of the Academy's Biology Division, describing how 'the biologist of the future will reorder the atoms in genes and chromosomes, creating amongst animals entirely new qualities which will be transmitted by inheritance.' The appearance of such articles in a journal which tended to focus on narrowly-technological issues, and never included the life sciences within its remit, is surprising and demonstrates how wide-spread support was for anti-Lysenkoists amongst publishers of popular science by the beginning of the 1960s.<sup>76</sup>

The situation for the next few years remained extremely complicated. The Lysenkoists once again had free access to the media, and used it to defend their positions. They often completely inverted their arguments of five to ten years earlier and distorted the evidence of foreign scientists in an attempt to prove the value of their work. P.P. Sakharov, grudgingly admitting the existence of chromosomes in an article in 1960, argued that bourgeois scientists wrongly ignored the role of random mutations provoked by the environment. This was despite the fact that the very idea of random mutations had been heresy to the Lysenkoists five years earlier.<sup>77</sup> While some quietly sought to reinvent Lysenkoist doctrine in this way, others continued to stand by every statement of Lysenko, making the situation increasingly convoluted. I.E. Glushchenko, for example, was still denying the existence of genes in 1960, and this was the position of the articles in Lysenko's own, more specialist, *Agrobiologiia*.<sup>78</sup> Lysenkoists also consistently sought to keep controversial works out of schools. A list of books for school libraries compiled by a Lysenkoist in the Ministry of Education in early 1961 was criticised for being out of date; the list in fact relied heavily on books published in 1948-1953, even where books had been revised in the late 1950s.<sup>79</sup> The obvious

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<sup>76</sup> A. Emme, 'Iadernyi Luch - Skal'pel Seleksionera' in *I&R* May 1960 (No.5), pp.50-3, V.A. Engel'gardt, 'Biologiia - Obogatit Tekhniku' in *I&R* January 1960 (No.1), pp.18-19

<sup>77</sup> P.P. Sakharov, 'Skvoz' Prizmu Filosofii' in *N&Zh* January 1960 (No.1), pp.49-52

<sup>78</sup> I.E. Glushchenko, 'Michurinskoe Uchenie Zhivet i Razvivaetsia' in *N&Zh* June 1960 (No.6), pp.35-42

<sup>79</sup> Session of the Biology Education-Methodological Council of the RSFSR Ministry of Enlightenment, 23rd March 1961: GARF f.A-2306/op.75/d.1881/l.9-10

intention was to conceal the ongoing ideological struggle from biology teachers and students, both of whom had trouble in getting specialist books from other sources.

Meanwhile, although the propaganda of classical genetics had clearly been forbidden, scientific propagandists found ways of presenting it to the public. Mark Popovskii wrote a number of articles on the cultivation of maize, focusing on the achievements of American cultivators and holding the years 1944-7 (a time when 'Americans were friends of the USSR and enemies of Fascism') up as a shining example of scientific co-operation to the USSR's benefit. He reported how one breeder, Il'ia Emel'ianov, struggled to create hybrid maize in these years until one of the then leaders of the Lenin Academy of Agricultural Sciences (obviously Lysenko) told him: 'I've struggled for fifteen years, and I'll repeat again; we'll learn nothing from these American freaks [*urod*].' According to Popovskii this situation was only redeemed when one of the 'active and concerned friends of maize', Khrushchëv, came to power and resolved to deal with the situation.<sup>80</sup> The anti-Lysenkoists also had friends within 'Znanie', although the society's biology section continued to be dominated by Lysenko's allies. Raisa Berg recounts how 'Znanie' had requested a book from the geneticist Davidenkov in July 1961, which he completed only days before his death. However, they then found themselves unable to print it, as did the Siberian branch of the Academy of Sciences, although 'Znanie's' president, Vladimir Kirrilin, promised to raise the issue with Khrushchëv personally.<sup>81</sup> During June 1960 visiting chemist Paul Doughty Bartlett gave a lecture at 'Znanie's' central public hall in which he took for granted the existence of genes, and the Mendelian laws, and described in detail the functioning of DNA and RNA; the society seems to have shown a degree of caution, not publishing this lecture for another six months.<sup>82</sup> Bartlett was an American, and therefore granted a degree of protection, but *Nauka i Zhizn'* published another article by a Soviet biologist, clearly describing the Mendelian process of inheritance, later in 1961.<sup>83</sup> The president of the Soviet Academy of Sciences also continued to criticise Lysenko in veiled terms, without mentioning genetics, by stating at public gatherings of the intelligentsia

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<sup>80</sup> Mark Popovskii, 'Dorozhe Zolota' in *Z-S* August 1960, pp.16-21; Popovskii later emigrated and published an exposé of Lysenko's persecution of Nikolai Vavilov.

<sup>81</sup> Raisa Berg, *Sukhovei: Vospominaniia Genetika* (Chalidze: New York 1983), pp.191-2

<sup>82</sup> 'Pol' Doti o Biopolimerakh' in *N&Zh* February 1961 (No.2), pp.28-32

<sup>83</sup> V.E. Kozubenko, 'Gibrid Pervogo Pokoleniia' in *N&Zh* May 1961 (No.5), pp.23-6

and the Party élite that biology lagged further behind the West than any other branch of Soviet science, and criticising institutions such as the Ministry of Education which were the bastions of Lysenkoist doctrine.<sup>84</sup>

The illusion of the dominance of 'Michurinist biology' in the USSR was therefore being repeatedly challenged, and this could only occur more frequently as contacts with Western science expanded during the Thaw, something that was highlighted in scientific propaganda. During November 1961 Moscow played host to the Fifth International Biochemistry Conference, the opening session of which was held in the Palace of Sports at the Lenin Stadium. Obviously believing the time had come to once again challenge Lysenkoism openly the editors of *Nauka i Zhizn'* gave broad coverage to the occasion and carried alongside their reporting an article entitled 'The Rehabilitation of DNA'. Adopting Daniil Danin's theme of 'a drama of ideas' the article took for granted the existence of a gene, coded on a chromosome, formed from DNA, but sought to challenge the Lysenkoist argument that DNA was not unique in its ability to carry hereditary information. It was not the content of this article that made it stand out, so much as the block-capitalised captions that accompanied the text, giving the clear impression to the reader that the subject was now beyond debate:

'A DISCUSSION OF DNA. THE READER, UNABLE TO REFUTE THE FACTS, IS FORCED TO AGREE WITH THEM.... THE PATH TO REHABILITATION - ONE EXPERIMENT.... TRUTH IS VICTORIOUS: THE UNIQUE NATURE OF DNA IS PROVEN! SCIENTISTS DECLARE ITS REHABILITATION!'<sup>85</sup>

Admittedly such bold declarations had more of the appearance of an official Party declaration than of a serious scientific discussion, but this only served to drive home the impression that Lysenko's hegemony had been declared obsolete by the authorities. The idea of DNA as a 'genetic code' and the possibility of genetic engineering were also high-lighted by Academicians Engel'gardt and Khuniants in

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<sup>84</sup> See for example, Nesmianov's speech to the Conference of Ideological Workers, 6-9th September 1960: RGANI f.5/op.33/d.131-2/l.66-70

<sup>85</sup> R. Salganik, 'Reabilitatsiia DNK' in *N&Zh* January 1962 (No.1), pp.10-13

their contributions to a 1962 re-issue of the popular science work *Reportazh iz XXI Veka*, in which leading Soviet scientists gave authoritative predictions of the important scientific research of the 21st century.<sup>86</sup>

Leading scientists certainly appeared increasingly confident when they openly criticised the Lysenkoists in public and in the press. The famous physicist Pëtr Kapitsa, speaking in Prague in late 1961, praised work done in the area of classical genetics, although he rather bizarrely suggested that the possibility of genetic manipulation could lead to the creation of a 'utopia' similar to that described in Aldous Huxley's *Brave New World*.<sup>87</sup> Vladimir Kirrilin, a leading representative of the Central Committee on scientific issues, spoke at a 'Znanie' conference on the results of the 22nd Party Congress in January 1962. He stated that as a result of the cult of personality 'we were not always brave enough in the development of broad discussions on debated questions in science, we did not always seek sufficient advice from the most qualified scientists when this or that question in the development of a science arose.' The collapse of effective peer review had led to 'harm both within the country, and to the authority of our science in the international arena.' His chosen example was the research of the cytologist Bosh'ian, whose works had been used to augment Lysenko's theories in the early 1950s, prior to his exposure as a fraud.<sup>88</sup> However, the drift of his argument must have been clear to all present; with the revival of the 'attack on the cult of personality' in Soviet rhetoric after the 22nd Party Congress it was once again open season on the Lysenkoists. Pressure from the faltering agricultural sector, as well as the renewed destalinisation campaign, conspired in April 1962 to see Lysenko removed once again as President of the Lenin Agricultural Academy.<sup>89</sup>

The 22nd Party Congress, in the newly approved Party Programme, did give half-hearted recognition to 'the Michurin direction in biology, which is based on the proposition that conditions of life have primacy in the development of the organic world.'<sup>90</sup> However, this was hardly the accustomed chorus of praise, and the renewed attack on the cult of personality launched at the congress naturally raised the

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<sup>86</sup> M. Vasil'ev and S. Gushchev, *Reportazh iz XXI Veka* (Sovetskaia Rossiia: 1962), pp.132, 143; these comments are not in the original, 1957, edition.

<sup>87</sup> P.L. Kapitsa, 'Budushchee Nauki' in *N&Zh* March 1962 (No.3), p.96

<sup>88</sup> Speech of Kirrilin to All-Union Conference on Problems of Communist Construction, 23rd January 1962: GARF f.9547/op.1/d.1272/l.60-3

<sup>89</sup> Werner G. Hahn, *The Politics of Soviet Agriculture* (John Hopkins: Baltimore 1972), p.63

<sup>90</sup> *Programme of the Communist Party of the Soviet Union* (Foreign Languages Publishing House: 1961), p.115

issue of the full rehabilitation of those Soviet biologists who had suffered persecution at the hands of the NKVD in the 1930s. The key figure in this respect was Nikolai Vavilov, once one of the heroes of Soviet science and brother to a president of the Academy of Sciences. Although his case had been re-examined in 1954 and he had been given a minor article in the revised *Entsiklopaedia*, a full reappraisal of his contribution to Soviet science would undoubtedly undermine Lysenko. The subject of Vavilov arose at a meeting of the 'Znanie' leadership in April 1962, where criticism of the Vil'iams field system was under discussion. Academician Artobolevskii, an engineer and Party bureaucrat, deviating from his draft speech, commented that 'the question of a monopoly.... is not limited to the grass rotation system of Vil'iams.... I have in mind selection, genetics, chemistry. And it is very good we are currently reviewing this position. Comrade Khrushchëv raised the name of [repressed agronomist] Academician Prianishnikov and others, but it shouldn't be forgotten that other outstanding theoretical and practical Russian scientists existed, such as N.I. Vavilov, Academician Ivanov, Professor Bogdanov, Academician Goriachkin and many others.' The Lysenkoist Glushchenko quickly responded that although Vavilov had gathered a fine collection of specimens he had relied upon a 'false methodological apparatus' that was 'alien' and 'metaphysical, unsuitable for our century'.<sup>91</sup>

It was Artobolevskii's characterisation, rather than Glushchenko's, which was adopted for a popular biography of the repressed botanist that was published in early 1962 with the co-operation of the Vavilov family. The book avoided controversial issues such as the discussions that had occurred amongst geneticists and philosophers in the late 1930s, and it did not mention Vavilov's arrest and death in prison, noting only that he had perished 'in the prime of his life'. Vavilov was described, in somewhat exaggerated terms, as a pioneering geneticist and the 'creator of the scientific basis of selection', and much attention was paid to the 'special responsibility' he had given to the genetics laboratory at his Institute of Applied Botany. Vavilov was not located within a Michurinist tradition (although his support for the elderly botanist was noted), his credentials instead being demonstrated with reference to the respect he had earned amongst the international scientific community. It was emphasised, to avoid lingering accusations of kow-towing to Western authorities, that by the late 1920s American agronomists saw him as their most significant competitor in the field of plant-breeding. Vavilov was thus portrayed as the central figure in the history of

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<sup>91</sup> 'Znanie' Central Committee Plenum, 13-14th April 1962: GARF f.9547/op.1/d.1261/l.59, 234

Soviet botany, with Michurin barely mentioned and Lysenko entirely absent, and he was transformed into an early example of peaceful competition with capitalism.<sup>92</sup>

During 1962 Nikolai Vavilov's life was also dramatised in a radio biography, broadcast on 26th November and obviously intended to fully restore him to the pantheon of Soviet scientist heroes. The play was based on Vavilov's memoir, *Piat Kontinentov*, which had been published earlier that year. The book was essentially a travelogue, describing Vavilov's numerous trips abroad to collect botanical specimens, and therefore it did not dwell on his scientific work. However, the introduction described him as a 'geneticist and theoretical selectionist' and as 'one of the greatest Soviet scientists', who had worked tirelessly for the Soviet homeland, and acted as a 'great patriot', before he had fallen 'victim to groundless accusations in the period of the cult of personality' and had been arrested.<sup>93</sup> The radio play also introduced Vavilov as 'one of the greatest botanists of the century', although the statement that 'Soviet agriculture set off along the road of knowledge largely thanks to the work of Academician Vavilov' was cut. The rest of the play focused largely on his exotic travels and adventures abroad, although it did contain a prolonged, didactic section in which Vavilov lectures an Ethiopian sea captain on the nature of chromosomes, Mendelian inheritance and the principle of dominance. The play closed with the announcer stating that Vavilov became head of the Lenin Academy of Agricultural Sciences and the Geographical Society, as well as editing 'serious scientific journals.' However, the fact that he edited the works of 'Darwin, Mendel and other classics of natural science' was cut, as was reference to his associations with his brother Sergei Vavilov, Vladimir Vernadskii, Fersman, Kasikovskii, Prianishnikov and Michurin himself, 'who deeply respected his true admirer.' The section stating he had died in 1943 following 'slandorous rumours', but had been rehabilitated posthumously as a result of the 'path of justice' opened by the 20th and 22nd Party Congresses, was also edited.<sup>94</sup> Despite the fact that the programme was edited, it represented, only days before the notorious Manezh' Incident, the peak of the Thaw with regard to Lysenkoism, at least while Khrushchëv remained in power.

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<sup>92</sup> A.I. Revenkova, *Nikolai Ivanovich Vavilov* (Sel'khozizdat: Moscow 1962), esp. pp.3, 48-9, 220, 222-6, 255-6; it is notable that this work was produced by the publishing house of the agricultural bureaucracy, usually assumed to be staunchly Lysenkoist.

<sup>93</sup> N.I. Vavilov, *Piat' Kontinentov* (Geografizdat: Moscow 1962), pp.5, 10

<sup>94</sup> Radio Broadcast, 26th November 1962: 'K Istokam Zelenogo Okeana': GARF f.6903/op.12/d.491/l.510-37

## LYSENKOISM IN FICTION

The work of Lysenko and his followers continued to be a feature of works of fiction written between 1953 and 1964, by both supporters and opponents of Michurinism.<sup>95</sup> Both sides in the argument attempted to capitalise on the rhetoric of the Thaw years, claiming that advocates of their views represented ‘youth’ and hard scientific facts, battling against entrenched and outdated monopolists. An early example of a Lysenkoist work that used this rhetoric was the novel *Volga - Matushka Reka* by the conservative author Fëdor Panferov. The novel was published to coincide with the September 1953 plenum on agriculture and told the story of the Party activist Akim Morev, sent to remedy the agricultural situation in a Volga *oblast*. He is assisted in his work by the agronomist Ivan Bakharev who regales him with utopian visions of utilising the miracles of Soviet science in order to transform the countryside; one of the tales he tells is of a newly-discovered bacteria which will raise yields by 15-20%. However, widespread anaemia amongst the horses on a nearby *sovkhos* threatens disaster and a debate begins over how best to treat them. The young veterinarian Elena Sinitsyna, with whom Akim falls in love, favours the experimental methods of the Soviet scientist Rogov, while other scientists recommend simply quarantining the animals. The work of Rogov is explicitly identified with the theory of ‘living matter’ emerging from inert, inorganic material, as proposed by the Lysenkoist frauds Lepeshinskaia and Bosh’ian. The insults soon fly: the older specialists decry Rogov as a ‘charlatan, an adventurer’, while Elena calls them ‘inveterate conservatives’, noting they deride his ideas as ‘fantasy’ in much the same way the class enemies attacked collectivisation. Ever the model activist, Akim reads Rogov’s works for himself before summoning Sinitsyna and her opponent, Professor Uralov, to a meeting of the obkom. There he reminds them the issue is ‘a general question of the principals of science’ and tells the cynical Uralov that ‘principle without practice is nonsense’. Elena attacks Uralov bitterly:

Do you think, professor, that bourgeois scientists recognise the biological laws of Michurin? No! You must be a Marxist in order to recognise such laws. Those scientists who refute the biological laws of Michurin we call conservatives. So why shouldn’t we call the professor a conservative?

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<sup>95</sup> For a broader discussion of fiction on this topic, see Wells, ‘The Genetics Dispute and Soviet Literature’

The meeting ends unresolved, but three days later, at a meeting of the local scientific intelligentsia, Elena is just opening her copy of Engels in order to condemn Uralov again when Rogov himself appears, 'in plain dress'. Uralov has a moment of revelation and greets Rogov as a genius, until the humble Soviet scientist replies: 'No, we shouldn't even joke - we're not geniuses. We are people who possess dialectical materialism. On the basis of the works of the geniuses Marx, Engels, Lenin and Stalin.... we crossed a forbidden line and refuted all that for a century was held unshakeable.'<sup>96</sup> Therefore, despite the assertion that the debate is one between iconoclastic 'youth' and monopolism, the argument is won neither by the presentation of scientific evidence nor by a practical competition in the fields (the most 'Khrushchëvian' solution), but by the sudden arrival of an authority from 'the centre', thus unwittingly exposing the source of the Lysenkoists' power.

A similar story is recounted in Nikolai Pogodin's play *Kogda Lomaiutsia Kop'ia*, which debuted at the Malyi Teatre in March 1953 and was widely performed across the USSR during the mid-1950s. The play focuses on the dilemma of the elderly academician Filipp Kartavin who is troubled by a rising young scientist, Mikhail Chebakov. Chebakov claims (again inspired by the work of Lepeshinskaia and Bosh'ian) to have proved that living matter can emerge from inorganic material, and has won the support of the dedicated Party official at his institute. The play revolves around Chebakov's attempt to disprove charges of plagiarism and Kartavin's moral dilemma over whether to support Chebakov's work or submit to the monopolistic authority of his careerist colleague Sergei Shavin-Muromskii. Kartavin is himself a representative of the old intelligentsia, unschooled in dialectical materialism, and he complains to a colleague: 'I apparently do not possess a method, and Chebakov does.... Do you really think I understand any worse than Chebakov the great picture of life in all its movement and vitality? I see, I understand, but I see no focus.' However the dilemma is taken out of his hands after his daughter, Lidiia, denounces Shavin-Muromskii to the Ministry, stating: 'The words of Comrade Stalin at the Bolshoi [in February 1946], that it is necessary to overtake foreign science in the shortest time possible, made a huge impression on me and my friends.' Thus the argument is once again resolved by the arrival of an external authority, rather than by scientific evidence; the deputy minister comes to a debate on Chebakov's research and notes the government supports it as 'progressive, brave, revolutionary work.' He then delivers a ringing denunciation

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<sup>96</sup> Fëdor Panferov, *Volga - Matushka Reka* (Sovetskii Pisatel': Moscow 1954), pp.47, 237-9, 287, 300-14

of the employment of biological weapons by the 'imperialists' and reminds all those present that 'in the natural sciences, on the whole front, a struggle goes on for Darwinism, for Michurinism, for dialectics, for Leninism.' Kartavin is allowed the luxury of continuing opposition, but he notes he will contest Chebakov's theories 'not with hypotheses, but with facts, achieved in living experiments' and he concedes that he will inevitably be defeated: 'Then I will have the spirit to recognise my defeat in the name of truth, elevating our science, for this is better than to win in the name of lies.'<sup>97</sup> Pogodin's play, like Panferov's novel, was criticised by name by the President of the Academy of Medicine when he wrote to Khrushchëv in 1955 condemning the work of Lepeshinskaia. He stated: 'The question of the struggle of opinions in Soviet science, conflicts amongst Soviet scientists and the morals of the scientific environment are presented in a sharply distorted fashion, not only in the works I have named, but also in a series of works of artistic and popular-science literature.'<sup>98</sup>

However, fiction could also be used to combat the influence of Lysenkoism, or at least to introduce readers to alternative ideas, and by the late 1950s a number of science fiction stories were adopting the ideas of Western, classical genetics without openly criticising Michurinism. Ivan Efremov's *Tumannost' Andromedy* took the bizarre approach of imagining a socialist utopia based on principles of extreme biological determinism; in Efremov's *Great Ring* a knowledge of one's genealogy is vital to choosing a suitable profession and for analysing the 'psychological structure' of an individual. The characters in the novel also discuss the 'primordial paired spiral' by which inheritance is transmitted and adopt one of the most popular metaphors of Soviet geneticists in the late 1950s, discussing the 'cybernetics of heredity' and how the inheritance and development of the genetic code is similar to the 'logical development of an electronic counting machine'.<sup>99</sup> Anatolii Dneprov's short story 'Kraby Idut po Ostrovu' tells the story of US military scientists 'breeding' superior war robots on a Pacific island through the principle of 'survival of the fittest'. Although the morality of these scientists is called into question, and poetic justice demands their death at the hands of their creations, the scientific logic of their work is shown to be correct, despite being in contradiction with Lysenkoist principles of 'species formation'.<sup>100</sup> Another Dneprov story, 'Formula

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<sup>97</sup> Nikolai Pogodin, *Kogda Lomaiutsia Kop'ia* (Iskusstvo: Moscow 1953), pp.43, 86-93, 103-4

<sup>98</sup> Bakulev to Khrushchëv, 15th April 1955: RGANI f.5/op.17/f.515/l.24

<sup>99</sup> Ivan Efremov, *Tumannost' Andromedy* (Moscow: 1959), pp.228, 298

<sup>100</sup> Anatolii Dneprov, 'Kraby Idut po Ostrovu' in *Z-S* November 1958 (No.11), pp.26-30

Bessmertiiia', sees a progressive Western scientist using the principles of classical genetics to engineer human life (in the process creating a wife and daughter for himself), so that the 'formula of man' can be launched into space in the event of a catastrophic war.<sup>101</sup> Although the story is another of Dneprov's crude satires on the influence of capitalism and militarism on the moral integrity of Western scientists, it implicitly approves of, and publicises, 'Western' classical genetics.

A work published in a small print-run in Minsk in 1963 tackled Lysenkoism more directly. Its author, Vasilii Mishnev, who was a specialist on forestry rather than a professional author of fiction, noted in the introduction that his story showed 'the struggle between the obsolete and the new, between scientific charlatans and genuine scientists.'<sup>102</sup> The story begins in early 1953 with the young *aspirant* Sergei arriving at a forestry institute and walking straight into a heated academic quarrel. One of the other *aspiranty*, Vasilii Chistiakov, is complaining to the respected Professor Iunovskii that one of the laboratory directors, Popolznev, has resorted to 'personal insult' and 'labels - Morganist, Weismannist' in attacking him. Iunovskii patiently tries to explain the situation regarding Michurinism to him:

Above all, it's necessary to define Michurinists properly. There are Michurinists and there are poor apologies for Michurinists [*gore-Michurints*]. The two have as much in common as truth and lies... I won't dwell on the details of how this direction emerged. It was the result of numerous indisputable experimental facts. But, as usually happens, the wide current carried on its surface much that was trivial, false, impure, in the form of dilettantes and charlatans... They think the living organism is like plasticine, from which a child can make anything they want.... but to shout about something is not the same as remaking it. I won't mention all the falsifications they make for careerist aims. This has nothing to do with science, it's a crime, and it should be decisively stopped.<sup>103</sup>

Sergei goes to work in Popolznev's laboratory, only to find that on the rare occasions the professor is in the laboratory he spends all his time raging against the 'home-grown Morganists' who thwart his work.

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<sup>101</sup> Anatolii Dneprov, 'Formula Bessmertiiia' in *Z-S* September 1962 (No.9), pp.34-41

<sup>102</sup> Vasilii Mishnev, *Uchënaia Stepen'* (Gosizdat BSSSR: Minsk 1963), p.4

<sup>103</sup> *ibid.*, pp.8-10

Popolznev is maintained in his position by Tushkanchikov, a weak-willed representative of the old intelligentsia, and the devious Rozenblium, a stereotypically crafty old Jew. After an anonymous denunciation by Rozenblium, Iunovskii comes under suspicion for having a 'doubtful past' as a collaborator with the German occupiers, and he is forced to resign. Popolznev now reigns supreme at the institute, suppressing any hint of dissent amongst the *aspirantura* by reference to the 1949 [sic] conference he was present at, where foreign biology was denounced as 'medieval scholasticism' and 'nonsense'. The institute is even treated to a visit by Popolznev's friend, the 'great scientist' Novikov (obviously fulfilling the role of Lysenko for the story), although his speech there is exposed as shallow nonsense. Meanwhile, Sergei seeks some escape from this claustrophobic academic atmosphere through 'practice'; unlike his fellow students he makes personal visits to forestry *sovkhozi*, getting his hands dirty, learning from foresters and studying the economic needs of his state. The book ends with news arriving that Iunovskii has demolished Novikov and his school in a debate held in Moscow.<sup>104</sup> However, Sergei's proposed dissertation is still being blocked by Popolznev and Iunovskii has yet to be rehabilitated; the story effectively ends on a cliff-hanger and a second volume would presumably have seen the heroes vindicated following the 20th Party Congress.

Such a blatant attack on 'Michurinism' did not go unnoticed for long. B.E. Rybkin, a worker at the Byelorussian Forestry Institute wrote to the All-Union Central Committee in April 1963 complaining the book was a 'slandorous, low-quality pamphlet, crudely distorting our work, bringing shame to Soviet scientists and joy to the enemies of the revolution.' He argued that the 'Michurinist direction' had received 'worldwide recognition' but 'the struggle of idealism against materialism' had not ceased and unproductive scientific workers continued to try to 'justify their existence with slander and insults'.<sup>105</sup> An investigation revealed that the book had been reviewed by two workers at the Byelorussian Institute of Experimental Botany and Microbiology, who had approved both the scientific content of the novel and its central theme, having noted that the book 'ruthlessly exposes false-science, careerism, witch-doctory and those who have ended up in science by accident.' The reviewers had argued such phenomena were typical of the era of the 'cult of personality' and concluded: 'Very correctly, in our view, the author exposes a shameful but real phenomenon; the use of the progressive teachings of Michurin and his name for personal goals, for certain

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<sup>104</sup> *ibid.*, pp.13-5, 50-5, 71-3, 116-7

<sup>105</sup> Rybkin to Il'ichëv and Mazurov, 24th April 1963: RGANI f.5/op.55/d.29/l.119

people to conceal their worthlessness.<sup>106</sup> The Central Committee investigation disagreed with them and decided that the book portrayed Michurinism 'incorrectly and in a confusing fashion. Representatives of this direction are shown in caricatured form, as quacks and charlatans, and their ideological opponents are shown as fighters for truth, purity and practical directions in scientific research.' The book was 'an attempt to reawaken fruitless discussion on unresolved issues in biological science' and the publishers and the Byelorussian Central Committee were reprimanded for having allowed it to be published.<sup>107</sup> During the early 1960s, even in the face of mounting public criticism of Lysenkoism, the authorities clearly had no doubt about which side in the debate was officially sanctioned.

### **LYSENKO'S FALL FROM GRACE**

Any hopes of toppling Lysenko while Khrushchëv remained in power were proved false by the appearance in *Pravda*, in late January 1963, of a decree of the Central Committee which threw the weight of the Party behind the Lysenkoists, stating that

Soviet biology of the Michurinist direction has achieved the greatest successes and occupies the leading role in the world in questions of genetics, selection and seed-selection and especially in questions of the direction of inheritance and its change....

The decree also made the following comment about the defences of classical genetics mounted in the popular scientific press on the preceding years:

On a series of occasions, research is carried out at a low level, is theoretically barren and has no practical significance. Despite this, articles appear in the press, with ever-increasing frequency, popularising and disseminating the imaginary achievements of this work, which creates an atmosphere of unhealthy sensationalism and creates a false orientation for social opinion.

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<sup>106</sup> Kapich to CPSU CC, 24th August 1963: RGANI f.5/op.55/d.29/l.120-3

<sup>107</sup> K. Krasnov and Ia. Azhipa to CPSU CC, 20th September 1963: RGANI f.5/op.55/d.29/l.118

However, while the decree called for the establishment of new institutes studying Michurinist biology, it also called for an expansion of research in other non-Lysenkoist fields such as biophysics and biochemistry and ordered the Foreign Languages Publishing House to increase its output of books on biological themes.<sup>108</sup> Therefore, while it indicated the continued support of the Party for the Lysenkoists it actually reaffirmed the principle of two competing directions in biology, and of the allocation of resources to both of them. Nonetheless, Lysenko made an obvious attempt to adopt the decree for his own purposes, writing a substantial article for *Pravda* later that week, which included his usual criticisms of Malthus, Morgan and Weismann, though in unusually mild terms.<sup>109</sup> Nonetheless the Presidium of the Academy of Sciences and its Biology Division, meeting on 1st February, accepted the CC decree virtually verbatim, without including any new criticism of Lysenko's enemies.<sup>110</sup>

This Central Committee decree, prompted partially by the ongoing agricultural crisis and partially by the knee-jerk reactionary instincts of the Party Presidium after November 1962, therefore did not become as dramatic a turning-point in the natural sciences as the Manezh' Exhibition had become for the arts. It is noticeable that the decree did not adopt the tactics of 1948 in condemning the opponents of the 'Michurin direction' as traitors or even ideological deviationists, instead regarding them as being irresponsible and gullible, yet essentially loyal to Soviet power. Therefore, although the dominant position of the Lysenkoists was again publicly affirmed in the press after February 1963, the implied threat hanging over Lysenko's enemies had obviously diminished. This acceptance of legitimate scientific debate coexisted uneasily with Khrushchëv's increased personal commitment to Lysenko's theories, which was to lead him to threaten the dissolution of the Academy of Sciences when it refused to accept Lysenko's crony, Nuzhdin, as an Academician.<sup>111</sup> His personal authority on agricultural matters increasingly rested on Lysenkoist rhetoric, and he cited his favourite 'scientist' over two dozen times between late 1959 and early 1964, although Werner G. Hahn has noted that, amongst the Soviet leadership of the time, only Polianskii and Khrushchëv

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<sup>108</sup> 'O Merakh po Dal'neishemu Razvitiuu Biologicheskoi Nauki i Ukrepleniuu ee Sviazi s Praktikoi' in *Pravda*, 25th January 1963, p.1

<sup>109</sup> T.D. Lysenko, 'Teoreticheskie Osnovy Napravlenno Izmeneniia Nasledstvennosti Sel'skokhoziastvennykh Rastenii' in *Pravda*, 29th January 1963, pp.3-4

<sup>110</sup> Decree No.100 of the Presidium of the USSR Academy of Sciences, 1st February 1963: RGANI f.5/op.55/d.29/l.23-33

<sup>111</sup> Mark B. Adams, 'The Soviet Nature-Nurture Debate', p.112

himself were willing to openly voice support for Lysenko.<sup>112</sup> Therefore, the more public the scientific debate became the more Khrushchëv's personal authority and political programme would be indirectly called into question.

The January 1963 decree did have a noticeable impact in the field of propaganda. Throughout 1963 and 1964 the biology section of 'Znanie', which had never ceased to lean towards the Lysenkoists, brought cadres of propagandists to study under Lysenko and his disciples at their Lenin Hills Research Station.<sup>113</sup> Articles by Lysenkoists became more prominent in the popular scientific press than they had been for several years, but they were increasingly unsure of themselves, simultaneously using the familiar rhetoric of 'Michurinist biology' while adopting inaccurate and incoherent critiques of recent Western research. Now that the majority of the theoretical postulates of 'Weismann-Morgan-Mendelism' had been accepted in the Soviet press, and resorting to the rabid xenophobia of the late 1940s in order to castigate classical genetics was no longer acceptable, the Lysenkoists did not have a unified opposition strategy. The pitiful spectacle of Lysenkoists arranging the translation of works by foreign classical geneticists became an increasingly regular one. Despite the fact that such authors espoused ideas that the Lysenkoists had condemned as 'idealist' for decades, such articles were published merely so the Lysenkoists could seize upon and inflate minor scientific curiosities and assert that they overthrew decades of Western research.<sup>114</sup> By this stage anyone who read the popular scientific press was well aware that Mendelist genetics had been universally accepted in the West for some time, and was unlikely to be based on such unstable principles. Soviet genetics, on the other hand, had descended to the level of farce, with two competing and completely incompatible schools. Therefore, the Lysenkoists' victory was a hollow one; they had earned themselves a chance to expose the paucity of their own ideas.

The decree of January 1963 also failed to prevent continuing public criticism of the tenets of Lysenkoist doctrine, although such criticism was muted compared to that which had built up following the 22nd Party Congress. Mark B. Adams has noted that from 1962 the Academy's Commission on Molecular Biology, headed by Engel'gardt, undertook the publication and translation of numerous works, producing a

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<sup>112</sup> Hahn, *Politics of Soviet Agriculture*, pp.76-9

<sup>113</sup> Conference of 'Znanie' Biology and Medicine Section Leaders, 22-27th April 1963: GARF f.A-561/op.1/d.690/1.1-16

<sup>114</sup> See, for instance, A. Studitskii, 'Vozmozna li Nasledstvennost' bez Khromosom?' in *NiZh* June 1964 pp.128-30, commenting on a translated article by Frenchman Martin Reno.

‘spate of popular articles’ which ‘put Lysenko’s supporters on the defensive.’<sup>115</sup> Andrei Emme published two further articles grounded in classical genetics in popular science magazines during 1963, while the leading physician V.V. Parin, himself a victim of Stalinist repression in the late 1940s, defended the discipline several months later in an article on Engels’ *Anti-Dühring*. Parin condemned scientists who continued to bow to ‘the cult of personality’ after fifteen years, having adopted the principle: ‘If the facts can’t be accommodated to Stalin’s plans, then so much for facts.’<sup>116</sup> The anti-Lysenkoist journalist Oleg Pisarzhevskii also used the occasion of the publication, in late 1963, of his biography of the persecuted Soviet agronomist Dmitrii Prianishnikov to make a number of veiled attacks on the Lysenkoists. The biography received an unusually large print-run as it condemned the works of the now-discredited Vasilii Vil’iams, criticised the ‘groupism’ and ‘monopolism’ which had emerged in Soviet science under the ‘cult of personality’ and provided an alternative genealogy for Soviet agricultural sciences. Pisarzhevskii also praised the rehabilitation of the ‘glorious memory’ of Nikolai Vavilov, alongside that of Prianishnikov, although he could not explicitly state which ‘monopolist’ had been responsible for his fate. However, he did openly espouse principles of classical genetics and argued that the ongoing struggle between ‘precise science’ and ‘primitive observational biology’ continued because some ‘pure biologists’ (as opposed to biochemists) were still wedded to concepts of natural philosophy derived from idealistic nineteenth-century German scientists. This was a complete adoption and inversion of the usual Lysenkoist rhetoric.<sup>117</sup> The children’s author A. Sharov, writing in *Voprosy Literatury* in 1964, alongside many other writers who were interested in science as an object of literary discussion, also raised the issue of Nikolai Vavilov’s persecution, suggesting he had been punished for his ‘absolute moral clarity’ and that ‘he was not alone’, hinting at the broader swathe of unacknowledged victims of Stalinism and Lysenkoism within the Soviet scientific community.<sup>118</sup>

The response of the Party apparatus to the decree of 1963 was also half-hearted at best. When the Academy held a conference on the role of ideology in science during the summer of 1963, an occasion

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<sup>115</sup> Adams, ‘Biology after Stalin’, p.76

<sup>116</sup> A. Emme, ‘Chasy Zhivoi Prirody’ in *N&R* April 1963 (No.5), pp.17-23, ‘Kodga Isporcheny Molekuly’ in *Z-S* November 1963 (No.11), pp.34-6, V.V. Parin, ‘Perechityvaia “Anti-Diuring”’ in *N&Zh* June 1963 (No.7), pp.4-9

<sup>117</sup> Oleg Pisarzhevskii, *Prianishnikov* (Molodaia Gvardiia: Moscow 1963), pp.64, 110, 186-8

<sup>118</sup> A. Sharov, ‘Model’ ili Sama Nauka’ in *Voprosy Literatury* August 1964 (No.8), p.59

which would usually have provided an ideal opportunity for the Lysenkoists to assert their hegemony, no one took this opportunity. The decree that was subsequently issued contained no reference to 'Michurinism' apart from a brief comment by Moscow First Secretary N.G. Yegorchev, who condemned Zhores Medvedev for his recent criticisms of Lysenko.<sup>119</sup> It was painfully clear during 1963 and 1964 that Lysenko's authority now rested solely on the increasingly fragile authority of Khrushchëv himself and, come October 1964, this final source of support was to dramatically vanish.

Those scientists, publicists and administrators who had sought to remove Lysenko moved swiftly to seize the initiative following Khrushchëv's deposition on 14th October 1964. The President of the Academy of Sciences, Msitislav Keldysh, wrote to the Central Committee on 26th October, informing them of his intention to summon a conference in December 1964 or January 1965 to discuss those areas of 'contemporary world biological science' which had not 'for whatever reason received necessary development in our country.' The teaching programme for schools and universities was to be discussed and representatives from the Academy of Medical Science, the Ministry of Agriculture and the Ministry of Education were also to be present. The Central Committee's ideologues quickly agreed to this, noting it would help to fulfil the orders laid down in the decree of January 1963; thus, the process of rewriting the past to suggest that the Soviet regime had always supported classical, Mendelist genetics, was already being set in motion.<sup>120</sup> This process was at work in a radio broadcast of 29th October, which reported that DNA was 'discovered comparatively recently', and accepted its existence and significance whole-heartedly.<sup>121</sup> A broadcast followed on 10th November in which Nikolai Dubinin, one of the leading geneticists in the Soviet Union and a strident critic of Lysenko, reported on progress in Soviet genetics and was allowed to refer favourably to many Soviet geneticists of the pre-war era, including some who had fallen under suspicion and been persecuted in the 1930s. However, his favourable references to Mendel were cut, as it was obviously considered such references would jar with listeners used to hearing the Czech botanist being denounced for the last fifteen years. Concluding, Dubinin was authorised to note that genetics research would have 'gone faster if more scientists had understood the significance of this research, if they were

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<sup>119</sup> Hahn, *Politics of Soviet Agriculture*, pp.127-8

<sup>120</sup> Krasnov and Monin to CC, 9th November 1964: RGANI f.5, op.55, d.91, l.103

<sup>121</sup> Radio Broadcast, 29th October 1964: 'Sputniki Nevidimyk': GARF f.6903/op.12/d.577/l.6-7, 10

really able to estimate the significance of genetics for life, science and production.’<sup>122</sup> However, Dubinin’s broadcast went out at a time when ‘only pensioners and children were at home’, provoking requests both from listeners and those who analysed their letters, that it should be rebroadcast at a more suitable hour.<sup>123</sup>

The campaign against Lysenko received widespread attention in the press in the weeks following Khrushchëv’s fall. The journalist Oleg Pisarzhevskii, only days before his death, penned perhaps the most concerted attack on Lysenkoism in an article for *Literaturnaia Gazeta*, which criticised Lysenko only indirectly, but focused on his pseudoscientific cronies like Lepeshinskaia and Bosh’ian, and their defenders in the literary community, such as Nikolai Pogodin, while emphasising the positive role of Nikolai Vavilov in promoting Michurin. Pisarzhevskii argued that much that had subsequently passed for ‘Michurinism’ was pseudo-science, and criticised the suppression of dissent which had flourished in Soviet science under Lysenko’s influence, stating: ‘Science is nothing other than a school for honour and bravery. Each publication includes a summons: “Fire on me!”’ Pisarzhevskii did not mention Khrushchëv, but emphasised how such pseudo-science stemmed from Stalin’s cult of personality, and how genetics had therefore been able to develop since the 20th Party Congress.<sup>124</sup> *Komsomol’skaia Pravda* also carried a number of articles in late November, one of which criticised the Ministry of Education, and *Biologiia v Shkole* in particular, for misleading teachers and students, particularly by failing to report on the discovery of the structure of DNA.<sup>125</sup> Another article criticised the August Session directly for establishing a ‘monopoly’ in Soviet biological science, which had broken with the ‘Vavilov tradition’ that had been accepted by the majority of Soviet biologists in the 1930s.<sup>126</sup> More articles later that month targeted Lysenko and his Lenin Hills research group with more specific criticism, and focused on their failure to produce useful results that would aid Soviet economic development.<sup>127</sup>

The definitive renunciation of Lysenkoism only occurred in late 1964 in a radio broadcast by Boris Kedrov, a leading Soviet philosopher of science, long-time opponent of Lysenko and recognised liberal

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<sup>122</sup> Radio Broadcast, 10th November 1964: ‘Perspektivy Razvitiia Sovremennoi Genetiki’: GARF f.6903/op.12/d.578/l.2-4, 6

<sup>123</sup> Annual Review of Letters from Radio-Listeners, 1964: GARF f.6903/op.10/d.49/l.118

<sup>124</sup> Oleg Pisarzhevskii, ‘Pust’ Uchenye Sporiat’ in *Literaturnaia Gazeta* 17th Nov. 1964, p.1-2

<sup>125</sup> N. Vorontsov, ‘Zhizn’ Toropit’ in *KP* 11th Nov. 1964, pp.3-4; the staunchly Lysenkoist *Estestvoznanie v Shkole* had been renamed *Biologiia v Shkole* in the late 1950s.

<sup>126</sup> V. Efroimson and R. Medvedev, ‘Kriterii - Praktika’ in *KP* 17th Nov. 1964, p.3

<sup>127</sup> ‘Vremia Otdeliaet Zerna ot Plevel’ in *KP* 19th Nov. 1964, pp.2-3 and Ia. Gordinskii, ‘Fakty Protiv Domyslov’ in *KP* 29th Nov. 1964, p.2

amongst Party intellectuals. His speech was, unusually, vetted within the Central Committee itself prior to broadcast on 25th December, and he made clear at the start he was expressing 'a deeply personal opinion', although this was obviously not the case. Kedrov gave a description of the origin of the science of genetics at the turn of the century and, while acknowledging valid criticisms had been made of Mendelist theory, he compared it to the atomic theory developed at the same time, which had also been considered 'metaphysical' and 'idealistic' because it had yet to be proven. Kedrov praised Michurin's work but emphasised that Lamarck had been proven incorrect, while Malthusianism and the idea of intra-species competition had a valid place in Darwinism. Finally Kedrov moved on to Lysenko:

Now imagine the following picture; when science has successfully moved forth on a given path a person appears who does not understand what goes on in contemporary biology and he says all this is idealism and mysticism, scholasticism and metaphysics, and therefore cannot be combined with dialectical materialism. Imagine then that this individual receives the right and power to slow down, and even liquidate, directions within biology which he does not like and do not confirm to his personal views. We have such a person in our country - Trofim Denisovich Lysenko.... He declares that each species aspires to maximally increase its mass. This is a fabrication, not a natural law. Just because I invent a phrase and call it a law, even a basic law, it does not make it a law.<sup>128</sup>

There were several notable things about Kedrov's line of argument. First, by emphasising the validity of 'Michurinism' and avoiding mention of contemporary developments in the West, it threw a lifeline to those careerists who were now willing to abandon Lysenko and follow the new Party line. Second, it provided no explanation of where Lysenko's 'right and power' had originated. This was to become a standard omission in the following months, as Khrushchëv's name could no longer be mentioned in the press, even in order to subject the former leader to criticism. The question of why Lysenko's 'administrative methods' had been permitted until October 1964 was left open, suggesting that rather than being the responsibility of one, easily scape-goated individual, the fault might lie in Marxist philosophy or the Soviet system itself, an idea which was potentially more damaging to the regime. However, such doubts

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<sup>128</sup> Mesiatsev to Il'ichëv, 25th December 1964: RGANI f.5/op.55/d.91/l.122, 125

were not raised in the responses of radio listeners that, as preserved in the archives, were universally positive and were 'very interesting and comprehensive.' One Zheltov of Baku wrote: 'This was a really timely, magnificent lecture, comprehensively and objectively setting out contemporary problems in biology.... This lecture must be rebroadcast and printed in the press, so it reaches not only scientific workers, but also practical workers in agriculture.' K.E. Volovik of Moscow Oblast' claimed to be 'personally touched by its depth, logic and Marxist analysis' while A.V. Arkadaskii of Cheliabinsk Oblast' stated simply: 'A big thank you!'<sup>129</sup> Kedrov's speech certainly provoked an unusually large response for a science lecture, indicating significant interest amongst the general population and a desire amongst many practical workers to re-orientate themselves according to new Party policy.

The Lysenkoists could do little to prevent their defeat. The Party bureau at Lysenko's institute spoke out in his defence, while his supporters rapidly set about destroying Nikolai Vavilov's personal archives, before they could fall into the hands of his opponents. Meanwhile the Central Committee set about marshalling its propagandists in order to re-educate the population of both the USSR and the Eastern Bloc. The Academy decreed the formation of an organising committee to restore biology to its rightful place in the Soviet system and ordered that 25-30 experts on genetics were to be prepared for trips abroad.<sup>130</sup> Agitprop also reported in April 1965, following the March 1965 plenum on agriculture, that it was preparing 400 propagandists to be sent on two-week tours of the Soviet Union; amongst their tasks was to explain the new situation in biological sciences.<sup>131</sup> F. Kulakov, Head of the CC Agricultural Section, forwarded a set of questions asked of these lecturers to the Presidium in May 1965, including: 'How could Academician Lysenko, over the course of decades, terrorise agricultural science? How is his work being overseen today?'<sup>132</sup>

It is clear that the sudden change of heart at the centre provoked shock amongst some teaching and propaganda cadres, although others simply accepted it. Susan Jacoby reported one teacher remarking to her: 'Of course in Latvia we never stopped teaching genetics. We just did it quietly - now the Russians are

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<sup>129</sup> Annual Review of Letters from Radio-Listeners: GARF f.6903/op.10/d.49/l.152-3

<sup>130</sup> Decree of the Presidium of the USSR Academy of Sciences, 25th December 1964: RGANI f.5/op.55/d.134/l.16

<sup>131</sup> Snastin, Kulakov and Khaldrev to TsK, 2nd April 1965: RGANI f.5, op.15, d.122, l.3-4

<sup>132</sup> I.E. Zelenin, *Agrarnaia Politika N.S. Khrushcheva i Sel'skoe Khoziaistvo* (RAN: Moscow 2001), pp.261-2

imitating us.’ However, she also relates the story of a teacher in Tbilisi who stood up in a meeting in 1964-5 and waved her textbook at a moderator: “‘You’re telling me I’ve been teaching a lie all my life,” she said with tears in her eyes. “I’m not a brilliant scientist - I’m just a teacher who has tried to do her best with seventh-grade children. And you’re telling me I’ve not only believed a lie myself but I’ve passed it on to the children in my class for fifteen years.’” Jacoby also reports meeting a tenth-grade girl who described her experience of learning about classical genetics for the first time: ‘I was really fascinated by genes and chromosomes. I had always thought of science in terms of Sputniks and rockets, which bore me to death.’<sup>133</sup> Such stories demonstrate the variety of responses that the changes of 1964 and 1965 provoked amongst those involved in science education.

The situation continued to remain unstable for some time, with scientists and propagandists unaware of how far their criticism of Lysenko, and praise for Western genetics, should extend. A radio bulletin on a three-day symposium at the Institute of Experimental Medicine in Leningrad in late December 1964 contained an interview with D.A. Briukov, who stated contemporary medicine was deprived of ‘a general medical theory’ and that classical genetics could now provide a ‘corner-stone’ for this theory. However, an interview with S.A. Neifakh, who admitted that ‘there was a great break in the work going on in this area after 1948 and the famous session of the Agricultural Academy’, had favourable references to Mendel cut once again. Similarly, Iu.M. Olenov’s references to the criticism endured by Zhores Medvedev and Valentin Kirpichnikov after an anti-Lysenkoist article in *Neva* in spring 1964 was also cut, as it would presumably raise awkward questions about the role of members of the new leadership in suppressing classical genetics.<sup>134</sup> Yet the reappraisal of Mendel was eased by the fact that 1965 was the centenary of the first publication of his work, and that he was a scientific hero of a fraternal country (Czechoslovakia). Dubinin spoke once again in August 1965 to celebrate this occasion, where he spoke of Mendel as a humble ‘teacher’ (his position as a monk now being quietly ignored) and referred to his discovery of the principles which established genetics in the twentieth century: ‘And the whole work, all breeding, goes by this route. Our selectionists count a quarter of the sowing area of the country amongst their work. The great shadow of

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<sup>133</sup> Susan Jacoby, *Inside Soviet Schools* (Hill and Wang: New York 1974), pp.106-7

<sup>134</sup> Radio Broadcast, 30th December 1964, ‘Genetika - Meditsina’: GARF f.6903/op.12/d.578/l.2, 4-5

Mendel stands over their work.’<sup>135</sup> He made no mention of Michurin, nor any criticism of Lysenko, implying that Mendelism was, and always had been, the guiding principle of genetics in the USSR, a fiction which was to be discreetly maintained until *glasnost*.

## CONCLUSION

One woman who had been a young agricultural scientist during the Thaw, recalling her experiences twenty years later, during *glasnost*, described her surprise when the work of Lysenko was officially discredited: ‘Then in *Nauka i Zhizn*’, and this was after 1964, an article appeared describing the work of Mendel. And I gasped. How could it be, that those who taught us hadn’t touched on this theory, they were smart, they were well learned, and we - the students - were green...’<sup>136</sup> This is the impression that is sometimes given, that Lysenkoism held an absolute monopoly over education and the media in the Soviet Union until, instantly, in late 1964 classical genetics was restored to its rightful place. Such an interpretation would suggest that the vast majority of the Soviet population, who did not work in scientific institutes or read specialist journals, remained unaware of debates within the scientific community and accepted ‘scientific truth’ imposed from above, unquestioningly.

However, such an interpretation obscures a more complicated truth. Even before Stalin’s death, scientists, publicists, educators and other interested parties had been attempting to counter Lysenko’s influence in the scientific establishment. These individuals worked alongside Lysenkoists in the school system, universities, ‘Znanie’ and popular science journals, where their obviously divergent and wholly irreconcilable views on the nature of science frequently led to vocal confrontations. Popular scientific opinion, which was not on the whole made up of dissidents, ‘liberals’ or trouble-makers, was nonetheless not prepared to tolerate the continuing hegemony of a pseudo-science which made a laughing stock of Soviet science and their own professionalism. Lysenkoism could only maintain its monopolistic position within the propaganda and education establishment as long as the Party’s official scientific policy remained clear. However, from 1952, such clarity was lacking and those who opposed Lysenkoism found there was

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<sup>135</sup> Radio Broadcast, 3rd August 1965, ‘U Istokov Genetika’: GARF f.6903/op.12/d.613/l.1, 4

<sup>136</sup> ‘Ne Konfrontatsiia, a Poisk Istiny’ in *N&Zh* December 1987 (No.12), pp.61-2

an increasingly lax response to their breaches of discipline. The half-hearted response of the Party leadership, which acted on Khrushchëv's personal orders to reinforce Lysenko's supporters on several occasions after 1953, could occasionally stifle the flow of anti-Lysenkoist commentary, speeches and articles, but it could never entirely halt it without resorting to the isolationist obscurantism of the late 1940s.

The authority of Lysenko and that of Khrushchëv had become intrinsically intertwined by 1964, and it was only with the fall of one that the other could be removed. Yet, instead of blaming Khrushchëv for Lysenko's disastrous survival after 1953, his successors failed to provide an explanation as to why Lysenko had been able to mislead the Party leadership for fifteen years on the basis of faked evidence. The story of Lysenkoism between 1953 and 1964 demonstrates the central problem that the Soviet leadership faced during the Thaw: the apparent impossibility of reconciling the legacy of Stalinism with attempts to open up to the outside world and remobilise Soviet society. Given an unimaginative, divided and chaotic propaganda establishment, it is not surprising that the scientific intelligentsia often took the initiative in these years, showing creativity, flexibility and courage in ensuring that the fruit of genuine scientific debate, from at home and abroad, was relayed to the Soviet public.

## CHAPTER FIVE: SPACE AND THE SOVIET CITIZEN

The Soviet space programme is one of the few achievements of the past century to which Russian citizens can still relate with unqualified pride. Despite its huge economic and human costs, it quite rightly continues to inspire patriotic admiration, and Yuri Gagarin is one of the few official Soviet heroes whose reputation has remained largely untarnished by revelations emerging in the wake of *glasnost* and the fall of the USSR. It is revealing that a recent history of the cultural Cold War mentions the flights of Sputnik I and Gagarin as amongst the 'cultural' triumphs of the Soviet Union, before naming any Soviet artists, poets, novelists, symphonies or films.<sup>1</sup> The early triumphs of the Sputnik programme and Gagarin's pioneering flight are probably what spring to the mind of most non-specialists if the words 'Soviet' and 'science' are mentioned together, and in standard textbooks these flights are invariably used to encapsulate the resurgent powers of the Soviet Union during the Thaw. The launch of Sputnik I is taken to symbolise the very peak of Khrushchëv's personal power, following his victory over the Anti-Party Group and coming hot on the heels of the 1957 Moscow Youth Festival and the International Conference of Communist Parties. The story of the Soviet space programme, which seemed to be outstripping the American space programme until the mid-1960s, but then faced one crisis after another, somehow seems organically connected with narratives of 'Thaw' and 'Stagnation', and can sometimes appear almost a metaphor for the rise and fall of Nikita Khrushchëv personally.

The space race was a contest that, on both sides, was overwhelmingly driven by the needs of propaganda, although it also presented military and, to a lesser extent, scientific incentives for rival political systems. William Barry writes that the Soviet space programme was 'never merely a military program. It was, originally, a special state propaganda program, overseen and co-ordinated at the very highest levels of government.'<sup>2</sup> Recriminations have flown in subsequent years over whether Soviet leaders risked the lives of the cosmonauts due to the desire to maintain their pre-eminence in this most visible sphere of

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<sup>1</sup> David Cate, *The Dancer Defects: The Struggle for Cultural Supremacy during the Cold War* (Oxford University Press: 2003), p.612

<sup>2</sup> William P. Barry, 'Sputnik and the Creation of the Soviet Space Industry' in Roger D. Launius, John M. Logsdon and Robert W. Smith (eds.) *Reconsidering Sputnik: Forty Years since the Soviet Satellite* (Harwood: Amsterdam 2000), pp.95-115, here at p.108

competition with the capitalist powers. The accusation has been levelled at Khrushchëv personally that by advocating risky projects such as the aborted Voskhod series he placed propaganda achievements before scientific endeavour or safety considerations. However, the most recent, comprehensive history of the Soviet space programme in this era emphasises that it was driven by the determination of all concerned - engineers, designers, cosmonauts, bureaucrats and politicians - to remain ahead in the race, and that the inspiration for bold propaganda initiatives often came from the designers themselves, who were well aware of how to tailor their plans to the interests of Party élites.<sup>3</sup> Khrushchëv's son, Sergei, who was personally involved in the space programme, has recalled that it was so dominated by the focus of its mastermind, Sergei Korolëv, on propaganda successes that his subordinates joked he really worked for the Soviet news agency TASS.<sup>4</sup>

The Soviet space programme was not, however, couched purely in terms of competing with America over who got what into space first. The Soviet regime had long had an ideologically-conditioned fascination with space, dating back to the early 1920s, and its visionary, Promethean propaganda had always promoted a strong interest in space and cosmology. The Soviet Union published at least 535 books on space and space flight prior to 1941. The most successful of these was Iakov I. Perel'man's *Mezhplanetnie Puteshestvie*, which underwent ten printings between 1915 and 1935, with 150,000 copies printed of its 1929 edition alone. During April 1924 the Zhukovskii Air Academy opened a Section of Interplanetary Communication, which corresponded with rocket pioneer Konstantin Tsiolkovskii and saw lectures delivered by the rocket engineer Fridrikh Tsander and the Bolshevik ideologue and science fiction author Aleksandr Bogdanov. Although this organisation was short-lived, the Association of Inventors opened the world's first Exhibition of Interplanetary Machines and Mechanisms in April 1927. Interest in space remained on the fringes of public culture, but it was sufficient to foster what Asif A. Siddiqi has termed the Soviet 'space advocacy community'. The clearest signal of official approval for this movement was provided when Tsiolkovskii was invited to give a speech in Red Square for the May Day parade in

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<sup>3</sup> See Asif A. Siddiqi, *Sputnik and the Soviet Space Challenge* (University of Florida Press: Gainesville 2000) and *The Soviet Space Race with Apollo* (University of Florida Press: Gainesville 2000)

<sup>4</sup> Sergei Khrushchëv, 'The First Earth Satellite' in Launius et.al. (eds.) *Reconsidering Sputnik*, pp.267-87, here at p.276

1935, while Mosfilm produced a silent film, *Kosmicheskoe Puteshestvie*, with his participation.<sup>5</sup> The enthusiasm for space extended to fiction as well, and 1924's romantic space odyssey *Aelita* was a hit with the public, who were accustomed to visions of space from the thriving market in printed science fiction; favourites included not only Soviet authors, but also the Martian epics of foreign authors such as Edgar Rice Burroughs.<sup>6</sup> Space was an arena for the creation of a new society, in which mankind itself would be recast. Such dreams were common amongst visionary space enthusiasts in all countries, but undoubtedly struck a strong cord with the ideology of the Soviet state. Although such themes gradually disappeared from public culture during the late 1930s, they re-emerged from the early 1950s, well before the Soviet space programme became public, and they were a core element of Soviet science fiction, which flourished in the Sputnik years.

The enthusiasm and hyperbole that surrounded the space programme after 1957 often reached extraordinary levels. Just as Nixon was to be criticised by Billy Graham for calling the Moon landing the greatest moment in human history since the Creation (forgetting the Resurrection), so one Soviet reviewer showed a degree of political 'immaturity' in calling the launch of Sputnik I 'the greatest event in the history of mankind' (implicitly placing it ahead of the October Revolution).<sup>7</sup> However, even at the time, some doubted the value of the rival space programmes, as Senator William Fulbright pointed out after the supposed triumph of Sputnik I in 1957: 'What about the prestige that Sputnik gave the USSR? It does not feed their people. It was a trick, a kind of gambit. It does not convert anyone to communism.'<sup>8</sup> This chapter explores the many different ways in which the space programme, and space more generally, were presented to the Soviet public in the years when the Soviet space programme was achieving its most visible successes. It will consider the ways in which the Soviet public were encouraged to conceptualise the godless universe around them, and the ways in which the new Soviet man was intended to relate to this new frontier. It will also examine the rare occasions when space propaganda was used to publicise visions that deviated from

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<sup>5</sup> Peter A. Gorin, 'Rising from a Cradle: Soviet Perceptions of Spaceflight before Sputnik' in Launius et.al. (eds.) *Reconsidering Sputnik*, pp.12-21, G.M. Kramarov, *Pervoe v Mire Obshchestvo Kosmonavtiki* (Znanie: Moscow 1962), pp.5, 12; Asif A. Siddiqi, 'Deep Impact: Robert Goddard and the Soviet "Space Fad" of the 1920s' in *History and Technology* Vol.20, No.2 (June 2004), pp.97-114, here at pp.103-4

<sup>6</sup> Ian Christie, 'Down to Earth: *Aelita* Relocated' in Richard Taylor and Ian Christie (eds.) *Inside the Film Factory: New Approaches to Russian and Soviet Cinema* (Routledge: London 1991), pp.80-102, here at p.88

<sup>7</sup> M. Mikhailov, review in *Z-S* May 1958 (No.5), p.51

<sup>8</sup> Quoted in James Oberg, *Red Star in Orbit* (Harrap: London 1981), p.35

those imposed by the Party, and the few times when public reaction to the space programme varied from that officially encouraged.

### THE COSMONAUT AS ROLE-MODEL

A great deal of effort was expended in selecting and grooming Soviet cosmonauts so that they could take their place at the centre of a major domestic and international propaganda campaign. These fresh-faced fighter pilots and engineers were held up to be moral, physical, intellectual and aesthetic exemplars for a rising generation of Soviet youngsters who were too young to be directly inspired by memories of the Great Patriotic War. Academician N.M. Sisiakin, one of those who had been involved in selecting and training the first cohort of Soviet cosmonauts, noted after Gagarin's pioneering flight that 'the Soviet cosmonaut combines the daring of Aleksandr Matrosov, the bravery of Dzhilil', the resilience of Zoia Kosmodem'ianska, the iron will of those educated by the great party of Lenin.'<sup>9</sup> Such a combination of exclusively positive characteristics was also noted by a speaker at a 'Znanie' meeting in October 1962:

The great models for a multi-faceted, well-rounded person, known to us from history, are Leonardo di Vinci, Goethe, Lomonosov, Mendeleev, Borodin - examples of talented geniuses from past centuries. Now, the process of the formation, en masse, of well-rounded people for our age, the age of socialism and communism, goes on. Brilliant examples of well-rounded development, yet typical of our age, are the spiritual wealth, moral purity and physical perfection which are harmoniously combined in the first of our Soviet cosmonauts - Iurii Gagarin, German Titov, Andrian Nikolaev and Pavel Popovich.<sup>10</sup>

Commenting ironically on the ability of the cosmonauts to quote Heine at the drop of a hat, Petr Vail' and Aleksandr Genis note that 'after many flights it became clear that an encyclopaedic knowledge

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<sup>9</sup> Radio Broadcast, 15th April 1961, 'Zvezdnyi Chas Chelovechestva Probil': GARF f.6903/op.12/d.447/l.252; all the three named individuals are young Komsomol or Party activists who had sacrificed their lives during the Great Patriotic War.

<sup>10</sup> Plenum of 'Znanie' Central Committee, 15-16th October 1962: GARF f.9547/op.1/d.1263/l.37

was inherent to all cosmonauts, without exception.<sup>11</sup> Thus the Vostok and Voskhod cosmonauts who, far more than their American counterparts, were simply 'spam in a can', were turned into Renaissance Men, who could act as role models for the rising Soviet generation.

The process of creating, and maintaining, a favourable image of the cosmonauts was aided by the heavy security restrictions placed on reporting of the Soviet space programme by foreign and domestic correspondents. Such limitations led the history of the Vostok and Voskhod programmes, and of the cosmonauts themselves, to become, until recently, one of the most esoteric and inaccurate branches of Sovietology. An officially designated censorship office was established for the space programme in 1957 and was headed by Mikhail Kroshkin.<sup>12</sup> Glavlit was also notoriously strict about any unwanted publicity surrounding the space programme, even when it was based on information that was freely available to those inside and outside the USSR. During 1960 it criticised Academician A. Aleksandrov and Doctor of Technical Sciences Ia. Kravtsov for having given out information on the number of stages on a Vostok rocket during a popular science broadcast, commenting that 'it is widely known that we do not disseminate this information.'<sup>13</sup> During 1963 the journalist Tamara Apenchenko was criticised for publishing biographical details about the cosmonaut Valerii Bykovskii in the Vladimir paper *Prizyv* without prior clearance. The information on which her articles were based was the result of her 'undercover' work at the cosmonaut-training centre, where she had been placed with the approval of the USSR Minister of Culture, Ekaterina Furtseva. Apenchenko was banned from publishing any such material in future without pre-publication censorship.<sup>14</sup> Glavlit complained again in 1964, about foreign correspondents based in Moscow who supposedly had access to prohibited sources of information. The censor alleged the articles produced by these reporters provided ammunition for those with 'goals hostile to the Soviet Union'. The targets of its criticism were *L'Humanité*, which had reported on excitement surrounding the launches of Vostok III and IV prior to their launch, and the *Daily Worker*, which had notoriously (and inaccurately) claimed, only days before Gagarin's flight, that the Soviets had already made a manned space launch.<sup>15</sup>

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<sup>11</sup> Vail' and Genis, *60-e: Mir Sovetskogo Cheloveka*, p.23

<sup>12</sup> Martin Dewhurst and Robert Farrell (eds.), *The Soviet Censorship* (Scarecrow: New Jersey 1973), p.63

<sup>13</sup> Glavlit Report to CPSU CC, 14th January 1960: RGANI f.5/op.35/d.128/l.112-3

<sup>14</sup> Tamara Apenchenko, 'Polgoda do Poleta Gagarina' in *Versia* 18th April 2004, pp.5-7; I am grateful to Irina Duddell for this reference.

<sup>15</sup> Glavlit Report to CPSU CC, [n.d.: summer 1964]: RGANI f.5/op.55/d.74/l.29-30

The moral integrity required from the cosmonauts was made clear to them from the day they joined the space programme, but nonetheless incidents of incorrect behaviour soon emerged. Sergei Korolëv, the administrative mastermind of the Soviet space programme, made the duty of the cosmonauts clear to them when he told them the attributes required of them would be 'patriotism, modesty, iron will, knowledge and love of the people', without mentioning anything about adherence to the Party or government. This was perhaps unsurprising, given that he himself had spent time in the gulag after being denounced by colleagues in the late 1930s.<sup>16</sup> However, the first cosmonaut cohort obviously understood the pressures on them to maintain discipline, as in May 1963 they voted to expel from the team four individuals who had been caught acting drunk and disorderly at the local railway station; these individuals were subsequently air-brushed out of any photographic records of the cosmonaut team.<sup>17</sup> However, not even the leading 'poster boy' of the programme, Iurii Gagarin, could be relied upon to act impeccably at all times and propagandists were soon put to work covering up for his lapses of discipline. During the summer of 1961 Gagarin, who was married, injured his face during a drunken escapade with a young nurse, and a cover story had to be hurriedly devised to explain his injury, prior to his appearance at the 22nd Party Congress. It was decided to explain that he had taken a fall whilst saving his daughter from drowning.<sup>18</sup>

The Soviet cosmonauts were not only utilised as models of disciplined good behaviour, they were also held up as exemplars of good, 'correct' taste in the sphere of culture and aesthetics. A brief biographical description of Gagarin published a month after his flight commented on his deep interest in maths, physics and engineering, but added

This love of exact sciences did not, however, hinder him from showing a warm interest in literature. He especially loved works of Soviet writers about the heroes of the Civil War - the works

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<sup>16</sup> James Harford, *Korolev: How One Man Masterminded the Soviet Drive to Beat America to the Moon* (John Wiley & Sons Inc.: New York 1997), p.159

<sup>17</sup> Jamie Doran and Piers Bizony, *Starman: The Truth Behind the Legend of Yuri Gagarin* (Bloomsbury: London 1998), p.99, David Scott and Alexei Leonov, *The Dark Side of the Moon: Our Story of the Cold War Space Race* (Simon and Schuster: London 2004), pp.86-8

<sup>18</sup> Doran and Bizony, *Starman*, pp.158-63

of Fadeev, Ostrovskii, Polevoi. Obviously, the ceaseless courage of his favourite literary heroes, their passionate adherence to their Motherland, was similar to his.<sup>19</sup>

Gagarin was therefore a solid, reliable contrast to his rival, German Titov, the son of a provincial schoolteacher, who had been notorious on the training programme for his *intelligentnyi* taste in pre-revolutionary literature and his ability to recite substantial passages of Pushkin by heart. However, Gagarin's supposed taste in literature had in fact been tailored for public consumption; his favourite novel, Hemingway's semi-approved *The Old Man and the Sea*, was hardly an appropriate choice for the first son of the Motherland.<sup>20</sup>

Conservative artistic tastes were similarly ascribed to the heroes of the future who were portrayed in Soviet science fiction. Captain Alexei Zarubin, the selfless cosmonaut hero of one of Valetina Zhuravlëva's elegiac tales, fills his empty hours in space completing exacting replicas of medieval paintings, 'with the devotion of a scholar and the ardour of an artist.'<sup>21</sup> Ivan Efremov's popular 1957 utopian novel, *Tummanost' Andromedy*, features an artist, Cart Sann, who comments on abstract art as a passing fad of purely historical interest, noting: 'Our work has changed very little during the thousands of years that people have painted pictures. The laws of optics and the human eye have remained the same.... on the whole the artist of antiquity worked in very much the same way I do now.'<sup>22</sup> The 1964 science fiction film *Mechte Navstrechu* features spacecraft cabins equipped with the vital indicators of post-war *kulturnost'* (frilly lamp-shades, crimped curtains and all), where future Soviet cosmonauts can sit in homely comfort and enjoy watching the ballet on television.<sup>23</sup>

Man's triumphs in space were therefore taken to herald a rebirth of 'realistic', conservative aesthetics, and were utilised in the campaign against modern art which was launched after the Manezh' controversy erupted in November 1962. During the December 1962 meeting of the artistic intelligentsia

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<sup>19</sup> G. Smirnov, 'V Preddverii Podviga' in *Z-S* May 1961 (No.5), p.5

<sup>20</sup> This is according to Alexei Leonov, who states Gagarin was reading it when they first met; see Scott and Leonov, *The Dark Side of the Moon*, p.39

<sup>21</sup> Valentina Zhuravlyova, 'The Astronaut' in Richard Dixon (ed.) *Destination: Amaltheia* (Foreign Languages Publishing House: Moscow 1962), pp.7-38, here at p.15

<sup>22</sup> Ivan Efremov, *Tumannost' Andromedy* (Moscow: 1959), p.168

<sup>23</sup> For such items as the quintessential markers of post-war domesticity and *kulturnost'*, see Dunham, *In Stalin's Time*.

with Fëdor Il'ichëv's Ideology Commission, Surovtsev, a literary critic from *Literaturnaia Gazeta*, argued that abstractionism had been grounded on the precept that man was 'dissolute and helpless before the cosmos', but that it had found its theorists 'long before man began to penetrate space.'<sup>24</sup> The argument that the magnificent achievements of the Soviet space programme rendered the pessimism of bourgeois art obsolete was common. Soviet authors, critics and propagandists used the image of modernity projected by the space programme as a bulwark against alternative images of modernity being offered by the artistic intelligentsia, both abroad and within the Soviet Union.

The flight of Valentina Tereshkova aboard Vostok VI in 1963 was another way of projecting an image of modernity, this time by presenting the Soviet Union as a pioneer in sexual equality. This point was made repeatedly in propaganda at the time, but in fact the popular presentation of the space race relied on patronising and conservative images of femininity. One humorous skit broadcast prior to Tereshkova's flight presented a male and female cosmonaut together on the moon, clearly suggesting 'impractical' women were unsuitable for such a job:

MAN: Without a space-suit, you'll suffocate.

WOMAN: Rubbish! A woman in a fashionable, well-cut dress could never suffocate!

MAN: I assure you that everyone wears space-suits on the Moon.

WOMAN: Are they fashionable?

MAN: It can be arranged if you like, yes.

WOMAN: Then get me a space-suit. The things women go through in the name of science!<sup>25</sup>

The portrayal of the sole female cosmonaut, Masha, in the 1962 science fiction film *Planeta Bur'* is also revealing. Having arrived in orbit around Venus, the crew of two Soviet spacecraft decide that one of their crew must remain in orbit to maintain communications with Earth; without apparent explanation, it is decided that this must be Masha, to her obvious disappointment. While the resolutely logical and disciplined men of the crew have all the adventures, overcoming volcanoes, dinosaurs and carnivorous

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<sup>24</sup> Session of the Central Committee Ideological Commission, 24th-26th December 1962: RGANI f.72/op.1/d.3/l.45

<sup>25</sup> Radio Broadcast, 4th October 1960, 'Do Samoi Dalekoi Planety, ne tak uzh Druz'ia, Daleko!': GARF f.6903/op.12/d.421/l.28

plants, Masha is relegated to the role of an empathic observer and narrator. Orbiting the planet, she alternates between periods of teary despair and moments of elation, when she frivolously cartwheels through the spacecraft in zero gravity. Eventually she must face a choice between landing the craft to aid her fellow crewmembers ('My heart tells me they need me more....') or obeying the orders of the Soviet government to remain where she is; however, she fails to do either and merely succeeds in dislodging the ship from orbit, thus breaking radio contact with both Earth and Venus and putting the lives of the whole expedition in danger. The comment of one of the male members of the crew seems to sum up the views that are espoused by the film generally: 'A robot can think, but not a woman.'

These stereotypes were not entirely dispelled by the flight of Valentina Tereshkova, and the focus on feminine vanity was again demonstrated in a profile of the Soviet cosmonauts published in 1963, after her return to Earth. Here, in photographs, Tereshkova was presented discussing mission briefs and playing sports (volleyball and billiards) along with her male colleagues, but she was also shown in a reassuringly maternal pose, comforting a crying child, as well as having her hair cut prior to the mission, with a caption reading: 'The coiffure must be beautiful, even under a space-helmet.'<sup>26</sup> Sue Bridger has pointed out that Tereshkova's parade through Moscow on her return coincided with the 22nd anniversary of the beginning of Operation Barbarossa and that her femininity was used as a potent symbol of the 'peaceful' nature of the Soviet space programme; unlike her male colleagues, Tereshkova was never presented in military uniform, despite being a junior lieutenant.<sup>27</sup> Tereshkova's lack of experience as a pilot, which contrasted with the backgrounds of her male colleagues, was also stressed by Korolëv, in an anonymous interview, where he cited this as evidence of the routinisation of space flight. Effectively, if a woman could go into space, anyone could.<sup>28</sup> Years later, Tereshkova was herself to disavow any emancipatory impact from her own flight, stating: 'I strongly feel that no work done by a woman in the field of science or culture or whatever, however vigorous or demanding, can enter into conflict with her ancient "wonderful mission" - to love, to be loved - and with her craving for the bliss of motherhood.'<sup>29</sup> It is also notable that within months of her

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<sup>26</sup> G. Ostroumov, 'Zemlia - Kosmos Zemlia' in *N&Zh* July 1963 (No.7), pp.14-19

<sup>27</sup> Sue Bridger, 'The Cold War and the Cosmos: Valentina Tereshkova and the First Women's Space Flight' in Melanie Ilič, Susan E. Reid and Lynne Attwood (eds.) *Women in the Khrushchev Era* (Palgrave: Basingstoke 2004), pp.222-237, here at pp.230-1

<sup>28</sup> N. Denisov, 'Na Puti k Glubinam Vselennoi' in *Pravda*, 23rd June 1963, p.6

<sup>29</sup> Quoted in Oberg, *Red Star in Orbit*, p.71

flight, in November 1963, Tereshkova was married to a fellow cosmonaut, Andrian Nikolaev, in the first Soviet state wedding, with Khrushchëv himself present to give her away.<sup>30</sup> Having achieved its goal in terms of propaganda, the further involvement of women within the Soviet space programme was abruptly halted, a move that had widespread support amongst both cosmonauts and the project managers.

### **‘YOU THINK OF EARTH’: POLITICS, NATIONALITY AND SPACE**

The space programme and the cosmonauts who presented its human face were presented in ways that emphasised the sacred significance of Party and nation to the Soviet citizen. All of those recruited to the space programme had to be of reliable social origin and political inclination and some, such as Tereshkova, were selected primarily on the basis of their political credentials. The devotion of all the Soviet cosmonauts to the Communist Party, their gratitude to the Party leadership and their adherence to Leninist ideological values were constantly stressed. However, the fact that some of them were not Party members was something that could be exploited for propaganda purposes, and the return to Earth of German Titov, the second man in space, presented such an opportunity:

Returning to Earth [Titov] heard words from Nikita Sergeevich Khrushchëv which he will never forget. “We consider your candidate stage [for Party membership] has been passed, because each moment you spent in space may be considered a year. You have passed your candidate stage and shown you are a real Communist, and may hold high the banner of Lenin.” Cosmonauts are heroes, Communists.<sup>31</sup>

While demonstrating the authority of the Party, the space programme was also used to bolster the authority of Khrushchëv personally. Khrushchëv delighted in calling German Titov his ‘celestial brother’ and being called a ‘space father’ in return, and in June 1961 he appears to have shown no shame in

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<sup>30</sup> Saddiqi, *Sputnik and the Soviet Space Challenge*, pp.373-4: unlike Bridger, I do not see this politically stage-managed wedding as a ‘blow for women’s independence’; see ‘Cold War and the Cosmos’, p.234.

<sup>31</sup> Radio Broadcast, 4th October 1961, ‘Zdrastvui, Strana Uchënyi’: GARF f.6903/op.12/d.450/l.80

accepting the Order of Lenin for his work in over-seeing the space programme, at a time when the names of the leading designers had to be kept out of the media.<sup>32</sup>

It has been debated how much personal interest Khrushchëv initially had in the space programme, but there is no doubt he soon grasped the way it could be used to earn prestige for the Soviet Union abroad, especially in strategically important states. The first issue of *Pravda* published after the launch of Sputnik I contained only a short report about the launch, but the following day, following the wave of excitement generated abroad, it was decided to grant more attention to the Sputnik, plastering it all over the front page, an approach which was taken with regard to later launches.<sup>33</sup> Many of these launches were also deliberately timed to achieve maximum impact abroad. According to Roald Sagdeev, the launch of Sputnik III was timed to give a boost to the Italian Communist party prior to national elections.<sup>34</sup> Lunik III was launched in late 1959 to coincide with Khrushchëv's visit to the USA, and gave him a chance to present a replica of the satellite to Eisenhower himself.<sup>35</sup> The timing of German Titov's flight in Vostok II was also determined by Khrushchëv, who personally summoned Korolëv to his Black Sea dacha in July 1961 and ordered him to engineer a new propaganda coup within a month. It eventually emerged that this was to provide a morale boost to the East German leadership, who were about to embark on the construction of the Berlin Wall.<sup>36</sup>

The personal authority of Khrushchëv was also bolstered by directly associating the achievements of the 'age of Khrushchëv' with those of the 'age of Lenin', while carefully sidestepping the issue of Stalin's time in power. The most obvious way of achieving this with regard to the space programme was by restoring to prominence the figure of Konstantin Tsiolkovskii, the provincial schoolteacher whose pioneering works on rocketry had been ignored by the tsarist authorities. After the revolution of 1917 Tsiolkovskii had been embraced by the Bolsheviks as a figurehead for the kind of utopian scientific programmes which were so popular in the 1920s. The cult of Tsiolkovskii saw a resurgence even before the launch of Sputnik I; during 1954 a Tsiolkovskii biography was commissioned and the Tsiolkovskii Prize for

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<sup>32</sup> Walter McDougall .... *The Heavens and the Earth: A Political History of the Space Age* (Basic Books: London 1985), pp.285-6

<sup>33</sup> Harford, *Korolev*, p.121

<sup>34</sup> Roald Z. Sagdeev, *Memoirs of a Soviet Scientist: My Adventures in Nuclear Fission and the Space Race Programme from Stalin to Star Wars* (John Wiley & Sons: New York 1994), pp.157-8

<sup>35</sup> Oberg, *Red Star in Orbit* p.40

<sup>36</sup> McDougall, .... *The Heavens and the Earth*, p.249, Harford *Korolev* p.178

work in rocketry was awarded for the first time.<sup>37</sup> Three films on Tsiolkovskii - a documentary, a popular science film and a drama - were being produced in 1955 and the Academy of Sciences was compiling a collection of his works in preparation for the centenary of his birth in 1957.<sup>38</sup> The support that Lenin had shown for the early rocket pioneers, who were inspired by Tsiolkovskii, was repeatedly demonstrated in books, articles and radio programmes. One radio drama portrayed him welcoming into his office the rocket designer Fridrikh Tsander, whose discussions with other political leaders had been met with nothing but scorn. Lenin, by contrast, reacts with boyish enthusiasm: 'This is such an important problem! And not only technical.... Man's escape from the Earth's atmosphere will allow us to expand our understanding of the universe limitlessly....' Rather uncharacteristically, Lenin also appears pained by the potential dangers of manned space flight, adding: 'We must be careful with people.'<sup>39</sup> However, some of the more utopian visions of the early space pioneers had to be reappraised in the light of recent events. A biographical drama about Tsiolkovskii, originally broadcast in February 1953, included his famous declaration that 'space will bring us mountains of bread'. However, on its broadcast in 1962, as the USSR led the space race yet found itself importing agricultural produce in order to contain civil unrest, this line was cut, along with any mention of Tsiolkovskii's meetings with Stalin.<sup>40</sup> Interestingly, given the prominence granted to Khrushchëv in publicity surrounding the space programme, it seems that attempts to grant him a place traditionally reserved for Stalin were avoided. Another broadcast on Tsiolkovskii, from 1960, featured a reminiscence from his wife, recalling how her husband had received a letter from Khrushchëv while on his death bed: 'You should have seen what joy Konstantin Eduardovich, then heavily ill, received from this greeting.... and to the finished note he added in his own hand: "All my hopes are on people like you."' Even if this tale was true, it was obviously deemed to be too crude an imitation of similar stories about Stalin and it was cut from the broadcast.<sup>41</sup> Nonetheless, the narrative conveyed by such stories was clear; Lenin had given the first nudge to the space pioneers, and after many years of delay, the vision of Lenin and Tsiolkovskii was being brought to life under Khrushchëv.

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<sup>37</sup> McDougall, .... *The Heavens and the Earth*, p.59

<sup>38</sup> Rumiantsev and I. Serbin to CPSU CC, 25th May 1955: RGANI f.5/op.17/d.549/l.62

<sup>39</sup> Radio Broadcast, 26th August 1962: 'Nauka i Tekhnika': GARF f.6903/op.12/d.490/l.615-7

<sup>40</sup> Radio Broadcast, [n.d.: 1962] 'Znamenityi Deiatel' Nauki Tsiolkovskii': GARF f.6903/op.12/d.248/l.95, 107-12; this radio biography is also discussed in Chapter Two.

<sup>41</sup> Radio Broadcast, 19th September 1960: 'On Shël Vperedì Veka': GARF f.6903/op.12/d.421/l.308

Supposedly, the cosmonauts were inspired to venture into space not only by their love of the Party, but also by their love of the Motherland. Propaganda surrounding the Soviet space programme, like that produced to accompany the American programme, sought to suggest there was something inherent in the national character that made it well-suited to the conquest of space. All the Soviet cosmonauts of this period were of Slavic origin, and in their case 'Soviet' and 'Russian' national characteristics were therefore considered to be synonymous. Although the Soviets (and indeed the Americans) always claimed the space race was fought in the name of 'all humanity', the specifically Russian characteristics of the cosmonauts were often stressed. The Russians, like the Americans, were the creators of a great landmass empire and naturally suited to the role of pioneers in harsh conditions. Articles made clear references to this: for instance, one correspondent describing his exhausting overland trek to the Baikonur space centre, brooding on the forbidding landscape encountered on the way.<sup>42</sup> Another author noted that Gagarin was a 'new man, the most progressive man in the world' but also stated he had the 'face of a Russian youth, kind, bashful even, lit up by intelligence and bravery, the face of our Soviet contemporary, growing up in a Russian family, a student of the Komsomol and the Party, hard-working, disciplined and free from man's destructive instincts....'<sup>43</sup> It is notable that in the late 1960s Gagarin associated with, and defended, the 'Pavlov Group' within the Komsomol, a loose association of 'Red patriots' and neo-Stalinists who became one of the corner-stones of what was later known as the 'Russian Party'.<sup>44</sup>

Despite their obviously utopian content, many Soviet science fiction stories do contain a nationalist subtext, featuring stoic protagonists who are sustained amidst the tedium and loneliness of space by nostalgic visions of Earth, the collective and the Motherland. Georgii Gurevich's story 'Infra Drakonis' has perhaps the most dispiriting vision of space, describing a life of 'boredom, tedious monotony and yet - continual vigilance. Nothing happens for whole years, yet every second might bring a sudden catastrophe.... The hours of solitary duty are the worst of all. You think of Earth.'<sup>45</sup> Space, in many science fiction stories,

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<sup>42</sup> G. Ostroumov, 'Zemlia - Kosmos - Zemlia' in *N&Zh* July 1963 (No.7), pp.14-19

<sup>43</sup> B. Apagov, 'Khudozhnik i Nauka' in *Khudozhnik i Nauka* (Znanie: Moscow 1966), pp.19-66, here at p.59

<sup>44</sup> Nikolai Mitrokin, *Russkaia Partiia: Dvizhenie Russkikh Natsionalistov v SSSR 1953-1985* (Novoe Literaturnoe Obozrenie: 2002), pp.241, 253; the cosmonauts B. Volynov, G.T. Beregovoi and A.A. Leonov also associated with the so-called 'Russian Party', *ibid.* pp.277, 298, 311. It is worth noting that Gagarin has also recently been adopted as the mascot of the militantly anti-Western youth group 'Nashi'.

<sup>45</sup> G. Gurevich, 'Infra Drakonis' in *Z-S* December 1958 (No.12), p.32

provides the cosmonaut with an opportunity for contemplative introspection, whereas the American space programme is portrayed as driven solely by the craving for novelty and celebrity. Furthermore, in self-imposed exile, the cosmonaut can ponder the sacrifice he has made by severing his ties to the essential sources of national life: nature and the *narod*. Ivan Efremov, who one critic describes as expressing a 'national-messianic' ideology in his later fiction, sought to provide a justification for the nostalgic longing for Earth that infused much Soviet science fiction at a round-table meeting in 1962. He noted that mankind possessed a 'unconscious, or as we used to call it, instinctive memory, passing through literally every cell of our body and connecting us with half a billion years of development from the first of our marine ancestors.' He argued that 'this connects us with our surrounding environment... and is very important for the future of man as a cosmic phenomenon.'<sup>46</sup> One of the key messages of the Soviet space programme was thus, paradoxically, that there was no place like home.

The Soviet space programme not only provided an opportunity to demonstrate the positive virtues of the Russian people, it also offered the chance to engage in mockery of American endeavours. This was extremely important in the early years of the space race, when Soviet achievements seemed to fulfil Khrushchëv's stated goal of 'catching up and overtaking the West'. Khrushchëv himself took great pleasure in deriding the American satellite Explorer I as being 'no bigger than a grapefruit': it weighed only 14kg compared to the 80kg of Sputnik I and the 500kg of Sputnik II.<sup>47</sup> Comments about the inferiority of American craft were common; for instance a 1962 radio broadcast noted the problems of G-force suffered by astronauts Gus Grissom and Alan Shepard, and claimed this was due to the inadequacies of American rocket technology.<sup>48</sup> However, similar problems suffered by Soviet cosmonauts were long kept top secret. One 1960 science fiction story, which was supposedly based on the authentic story of a defector, 'Samuel D.', and had parallels with the story of Gary Powers, played upon the perceived inadequacies of American rocket technology. It told the story of Charlie Wright, a Black American ex-GI who, plagued by poverty, becomes a test pilot, but soon discovers that the German engineer von Graus has proved incapable of developing remote control for his rockets, and instead uses human guinea pigs to guide them to their target.

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<sup>46</sup> Rafail Nudelman, 'Soviet Science Fiction and the Ideology of Soviet Society' in *Science-Fiction Studies* Vol.16, No.1 (March 1989), pp.38-67, here at p.57, 'Chelovek Nashei Mechty' in *Neva*, April 1962, p.167; Efremov's idiosyncratic ideas on biology and inheritance have already been noted in Chapter Four.

<sup>47</sup> Doran and Bizony, *Starman*, p.51

<sup>48</sup> Radio Broadcast, 13th January 1962, 'Rakety Startuiut po Raspisaniuu': GARF f.6903/op.12/d.485/l.131

Charlie manages to avoid his fate and flees with his wife to the safety of Cuba. This story therefore managed to combine a portrayal of faulty American technology with accusations that Black Americans were being used as guinea pigs by the American military-industrial complex, an allegation that had previously been raised by the Soviets.<sup>49</sup>

It is surprising that comments about the employment by NASA of German engineers, originally employed on the V-2 rocket programme, were relatively rare in Soviet propaganda. One commentator did criticise the infamous Werner von Braun and his team, arguing ‘they found only one application [for the V-2] - to kill. They didn’t launch one rocket for scientific reasons, to investigate the higher levels of the atmosphere. Not one, you understand?’<sup>50</sup> However, he did not criticise NASA for employing von Braun, nor was any hostile rhetoric usually employed when von Braun was quoted in popular science articles; his ex-Nazi past was usually ignored, in marked contrast to the heavy criticism he came in for in the Western press. It can only be assumed that this was to avoid provoking a war of words over the employment of Nazi engineers, as the early Soviet programme had itself been heavily dependent on the work of kidnapped German specialists, seized in the process of Operation Osoaviakhim.<sup>51</sup> Eisenhower himself commented, on hearing of the launch of Sputnik: ‘German scientists captured at the end of the Second World War doubtless played a big part in the Soviet achievement.’<sup>52</sup> It was probably to avoid the risk of exposing their own embarrassing secrets that Soviet propagandists tended to keep silent about this potential propaganda goldmine, although it was evidently considered a fit subject for adventure fiction.

The space programme not only provided ammunition for ridicule of American technological prowess, it also granted opportunities for broader criticisms of American society. A good example is again provided by the film *Planeta Bur*, where an American, Allan Kern is allowed to join the Soviet expedition to Venus in order to test his robot ‘Iron John’. Kern, although his intelligence and commitment are never questioned, is unremittingly cynical about human nature, and instead places his faith in his own lifeless creation. He refutes the possibility of intelligent life on Venus, believing that any civilisation will inevitably exterminate itself, and when he is stranded with a fellow cosmonaut he refuses to believe the rest of the

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<sup>49</sup> Aleksandr Kol’tsov, ‘Taina Belykh D’iabolov’ in *N&Zh* October 1960 (No.10), pp.66-70

<sup>50</sup> M. Vasil’ev and S. Gushchev, *Reportazh iz XXI Veka* (Sovetskaia Rossiia: Moscow 1962), p.298

<sup>51</sup> See McDougall, ....*The Heavens and the Earth*, pp.43-6, Norman M. Naimark *The Russians in Germany: A History of the Soviet Zone of Occupation, 1945-1949* (Harvard: Cambridge MA 1995), pp.218-227

<sup>52</sup> Oberg, *Red Star in Orbit*, p.35

Soviet expedition will come to their rescue, as people are 'natural cowards and egoists'. When one of the Soviet crew-members discusses the possibility of making the atmosphere of Venus breathable, Kern can only suggest that he is eager to win a Nobel Prize, refusing to believe that 'man can work for mankind without needing prizes.' However, at the finale, having almost been murdered by his own malfunctioning robot, Kern is forced by his Soviet companions to concede that flesh and blood has a place alongside the relentless logic of automata. The soulless American worship of technology is therefore shown as dramatically inferior to Soviet faith in the abilities of man and machine in harmony.

### **SPACE, WORLDVIEW AND SCIENTIFIC-ATHEISM**

Astronomy and cosmology had always been considered amongst the most important tools in the scientific-atheistic armoury and had been used to combat the 'vestiges' of a religious worldview since the 1920s. Soviet propaganda always claimed that the urge to conquer space was driven by purely rational, materialistic interests, such as scientific progress and economic development. This was particularly ironic given that Tsiolkovskii, the father of Russian space flight, had been deeply inspired by the mystic Nikolai Föderov and believed that interplanetary flight would lead to contact with non-material aliens and the eventual resurrection of all humanity in the form of sentient radiation. During the 1920s his home town, Kaluga, became 'a centre of both cosmic thought and of the Russian Theosophical movement', a fact which was quietly ignored in all subsequent Soviet propaganda.<sup>53</sup> The victories of the Soviet space programme in the late 1950s and early 1960s were inevitably featured heavily in the propaganda which accompanied Khrushchëv's anti-religious campaigns, notably in 'Znanie's atheistic journal *Nauka i Religiiia*, where propagandists espoused a Promethean image of the new Soviet man who imposed his will on a godless universe. Such articles clearly inherited much of their rhetoric from earlier Bolshevik propaganda campaigns; the image of the Soviet aeroplane, and pilot, had been used in anti-religious propaganda since

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<sup>53</sup> Michael Holquist, 'Tsiolkovsky as a Moment in the Prehistory of the Avante-Garde' in John E. Bowly and Olga Matich (eds.) *Laboratory of Dreams: The Russian Avante-Garde and Cultural Experiment* (Stanford: 1996), pp.100-117

the early 1920s, emphasising the modernity of the communist regime and Soviet man's control over nature.<sup>54</sup>

The supposed hard-nosed materialism of Soviet cosmonauts was in direct contrast to the almost universal committed religiosity of the early astronauts in the United States; all of the Mercury astronauts were 'devout Protestants' and until the end of the Apollo programme 90% of astronauts were committed Christians, 85% of them Protestant. While the Americans included St. Christophers on the blueprints of their early Vanguard rocket, the Soviet cosmonauts were called upon to prove their complete faith in technology.<sup>55</sup> When asked by a Polish correspondent if he had taken any kind of keepsakes into space on his pioneering flight, Gagarin answered: 'I assure you I don't believe in any sort of objects, talismans and such things. I didn't take any photos with me either, as I knew on my return to Earth I would see my friends and family here, on Earth.'<sup>56</sup> However, as one well-known anecdote recounts, Gagarin's atheism was less militant than it appeared in public. According to one version of the story, when asked by Patriarch Aleksei whether he had seen God on his flight he replied he had not, but when asked the same question by Khrushchëv he replied he had; both men told him it would be advisable to keep this information to himself.<sup>57</sup> However, as far as the public was informed by Soviet propaganda, the cosmonauts were convinced atheists whose feats demonstrated that God did not exist.

Much of Soviet propaganda was explicit in stating not only that the space programme proved the non-existence of God but that it was the first step in the transformation of Soviet man into a god himself. The mother of Andrian Nikolaev, the pilot of Vostok III, joked in one interview that she had used to go to church herself, prior to her son's elevation to the heavens, but when asked whether her son had met God on his flight, she replied: 'You are the owners of the heavens.... You are yourself gods.'<sup>58</sup> Vail' and Genis state that the 'very person of the cosmonaut miraculously combined the democratic demands of a people's state and those of the religious canons. On the one hand they were simple chaps, the boys next door, everyday

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<sup>54</sup> Palmer, 'Peasants into Pilots', pp.11,21,25

<sup>55</sup> David Noble, *The Religion of Technology: The Divinity of Man and the Spirit of Invention* (Alfred A. Knopf: New York 1998), pp.136-7

<sup>56</sup> Radio Broadcast, 15th April 1961: 'Zvezdnyi Chas Chelovechestva Probil': GARF f.6903/op.12/d.447/l.260

<sup>57</sup> Scott and Leonov, *The Dark Side of the Moon*, pp.209-10; other accounts of this meeting have Gagarin deferring to the Patriarch on any question of the existence of God in Earth orbit.

<sup>58</sup> Z. Mezentsev, 'V Gostiakh u Bogov' in *Z-S* September 1962 (No.9), pp.2-4

folk, Soviets. On the other hand they were surrounded by the mystery of gods and the high dignity of priests.’<sup>59</sup> The image of Soviet man projected by space propaganda owed much to the God-building trend amongst the early Bolsheviks, one of the leading exponents of which had been Aleksandr Bogdanov, who was himself intrigued by the prospect of space travel.

A knowledge of astronomy, and an understanding of the universe, was considered to be one of the surest ways of fostering a materialist worldview amongst the population, and a great deal of attention was expended by propagandists on teaching astronomy. Following the aborted 1954 campaign against religion (see Chapter 3) a report reached the Central Committee regarding the All-Union Astronomical Society, which was due to hold its second congress in Leningrad the following February. It was noted that, compared to the society’s Czech counter-part ‘the scientific and atheistic propaganda carried out by the Society still does not reach the broad mass of the population.’ One section of the society, in Gor’kii, even allowed its atheist lectures to be delivered by one Lazarevskii, an activist in a sectarian group. The report also noted the absence of a popular astronomy journal, such as *Mirovedenie*, which had existed before the war and had operated as a conduit for vigorous scientific-atheistic propaganda.<sup>60</sup> When ‘Znanie’ discussed the question of scientific-atheistic propaganda in May 1957, the ex-editor of *Mirovedenie*, the Stalinist astronomer Vartan Ter-Organezov, took the offensive, arguing that ‘each biologist, astronomer and philosopher must be a propagandist of atheism.’ He noted that cheap, mass-produced Maksutov telescopes had been available for a decade, but were not used, stating ‘Someone who even once has the possibility to observe Jupiter and its satellites will immediately become an atheist, and [the telescopes] are more useful than ten of our best lectures.’ He also criticised the fact that it had become impossible to buy a copy of his own *What Science and Religion Say on the Origin of the Universe*.<sup>61</sup> Such blind faith in the revelatory impact of astronomy was also expressed by a lecturer working at the People’s Observatory at the Ligachev Autoworks in Moscow, where the Young Astronomers Club had 120 members. The lecturer, a teacher, argued that ‘a few minutes spent at the telescope.... sometimes have more significance for atheistic education than an hour-long lecture.’<sup>62</sup>

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<sup>59</sup> Vail’ and Genis, *60-e: Mir Sovetskogo Cheloveka*, p.23

<sup>60</sup> Rumiantsev and Monin to CPSU CC, 30th December 1954: RGANI f.5/op.17/d.459/l.49-52

<sup>61</sup> ‘Znanie’ Presidium Meeting of 26th March 1957: GARF f.9547/op.1/d.1096/l.194-9

<sup>62</sup> E. Rakhovskaia, ‘Klub Iunykh Astronomov’ in *N&R*, March 1961, pp.71

The popular presentation of astronomy was deliberately designed to confront religion in the most aggressive and assertive fashion. The concern within the Party at the number of pilgrims visiting the holy lake of the Voskresenskii region of Gor'kii Oblast' provoked the dispatch of a mobile planetarium and a portable cinema in which popular science films were shown, as a result of which the number of pilgrims reportedly fell substantially in 1953.<sup>63</sup> A similar approach was adopted by the first secretary of the Buriat-Mongol republic in 1955, when he criticised the attention paid by the local Buddhist population to astrology, stating 'lammas are widely occupied by making predictions, using religious rites connected with astrology.' He noted that in response, and after discussion with 'Znanie', it had been decided to build a planetarium in Ulan-Une, the largest local population centre; predictably, an abandoned local church had been chosen as the best site for the planetarium.<sup>64</sup> A discussion within 'Znanie' in 1962 over the success of scientific atheistic propaganda in Azerbaijan boasted, revealingly, that the number of astronomy lectures had doubled during 1961. One speaker noted that a voluntary planetarium had begun to operate in Baku but that, problematically, it was working in a mosque as insufficient funds had been provided to secure a building (whether this mosque was continuing to function or not remained unclear). The society obviously thought that astronomy was the way to resolve the problem of 'vestiges of the past' however, as it ordered a commission to be formed to assist in finding a permanent home for Baku's planetarium.<sup>65</sup> A similar call came from Vilnius in 1962, when the local first secretary, A. Snechkus, stated that the opening of a planetarium would no doubt aid the struggle with 'religious vestiges'.<sup>66</sup>

Mobile planetaria also played a major part in 'Znanie's' propaganda activities; each of these planetaria, which had been manufactured in the GDR, cost 40,000 pre-1961 roubles. They required three personnel to operate and six days to set up, and roamed the countryside during the summer months, often putting on displays on religious holidays. The mobile planetarium in Tambov Oblast', which was operated by a demobilised Red Army engineer, claimed to have notable success:

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<sup>63</sup> I. Tarasov and V. Furov to Pospelov, 6th August 1953: RGANI f.5/op.17/d.452/l.123

<sup>64</sup> A. Khakholov to CPSU CC, 14th July 1955: RGANI f.5/op.16/d.706/l.86-7

<sup>65</sup> 'Znanie' Presidium Meeting of 15th March 1962: GARF f.9547/op.1/d.1264/l.23-7, GARF f.9547/op.1/d.1265/l.42

<sup>66</sup> A. Snechkus, 'Vazhneishee Uslovie Vospitaniia Novogo Cheloveka' in *Kommunist* March 1962, p.51

Here's an interesting fact. We opened the planetarium in the village of Goroloe on 5th June. It was a religious holiday - Trinity. That evening we opened the planetarium. Every single person in the village came to look at the stars, at the moon. A long queue formed by the telescope and at two o'clock in the morning, when we finished work, an old *kolkhoznik* came up to the lecturer and said: 'It's a good thing you thought to come to the village and enlighten us. Maybe I wouldn't have gone to the town, so your planetarium came to my home.'<sup>67</sup>

It is however notable that, despite the success the planetarium supposedly had, it is not claimed that it had any effect in halting the religious holiday being conducted on the same day; it may well have been that the *kolkhozniki* regarded it as part of the holiday entertainment. Another of these mobile planetaria, based in Rostov-on-Don, was the base for the reading of 654 lectures between 1956 and 1961 and had appeared at over 700 *kolkhoz* and *sovkhos* schools. However, of 32 of these planetaria delivered from the GDR only five were in use by 1961, whether due to the cost of maintaining them or the difficulty of providing the personnel to operate them.<sup>68</sup>

The assertions of Soviet ideology within the field of astronomy rested on a number of basic principles, the most important of which was the infinite nature of the universe, both in time and space. This essentially Newtonian view of the universe had to be defended against any evidence that suggested that the universe had a point of origin, and raised the issue of a moment of creation. However, the rhetoric surrounding this issue in the popular press gradually became more conciliatory. Articles published during Stalin's time and into the mid-1950s widely denounced all attempts to assert the universe had begun with a Big Bang as being mired in 'idealism' and concocted by the Catholic Church; it was often noted that it was a Belgian abbot, Lemaître, who had first put forwards the hypothesis in the 1930s.<sup>69</sup> Arguments about whether the universe could be observed to be expanding were simply dismissed by scientific ideologues, as one author stated, having noted that Pope Pius XII supported the idea: 'We will not talk here about the scientific basis for this theory.... Science cannot give an answer to the question whether the universe is

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<sup>67</sup> B. Titov, 'Peredvizhnoi Planetarii' in *N&R* October 1960 (No.10), pp.90-1

<sup>68</sup> Meeting of Planetarium Directors, 8th July 1961: GARF f.A-561/op.1/d.492/1.31-2, 39, 117

<sup>69</sup> For instance, E.A. Fadin, 'Zagadka Krasnogo Smeshcheniia' in *N&Zh* October 1955 (No.10), pp.43-5

endless or not. This question is being resolved by philosophy.<sup>70</sup> However, by the early 1960s the Big Bang hypothesis could no longer be ignored and it had to be discussed openly, with many journals publishing articles ‘in response to readers’ letters’. Now the discovery of red shift was appropriated and awarded to the Soviet astronomer A. Fridman, but it was noted that red shift was ‘naturally, a purely experimental, empirical law’ based on the expansion of the *visible* universe. Rather than try to denounce the ideological underpinnings of different cosmological theories, a 1963 article advanced three different cosmological models (universal expansion, local expansion and pulsation) without implying that any of them was inherently anti-Soviet or ‘idealistic’.<sup>71</sup> Soviet writers tried to give the impression that it was the West, rather than the USSR, that had shifted its position. The writer-physicist Vladimir L’vov, a rabidly demagogic Stalinist in the past, claimed in 1962 that the reason that renewed dialogue had become possible was that Western scientists had abandoned their stance of the late 1940s, that the entire Milky Way had sprung into existence, in its current configuration, in an instant. They, like Soviet astronomers, had now come to accept an evolutionary model of the universe.<sup>72</sup>

Another issue that the Soviets claimed divided them from their Western counterparts was their attitude to extra-terrestrial life, although their analysis of Western views on the topic was often inconsistent. Soviet propagandists, based on a materialist conception of the universe, argued that intelligent life must arise on every planet capable of supporting it; furthermore, given the universal nature of Marxist dialectics, every alien civilisation scientifically-advanced enough to engage in space travel must be socialist and peace-loving. Hence the exploration of space would eventually lead to Earth joining a vast, interstellar version of the Warsaw Pact. This idea was obviously appealing to many readers, and propagandists argued that Western scientists, inspired by religious views of the origins of life, were killjoys by comparison. One author noted, in a review of G.A. Tikhov’s *Astrobiologiia*

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<sup>70</sup> A.S. Arsen’ev, ‘O Gipoteze Rashireniia Metagalaktiki i “Krasnom Smeshchenii”’ in *Voprosy Filosofii* August 1959, pp.187-90

<sup>71</sup> F. Zigel, ‘Paradoksy “Krasnogo Smeshcheniia”’ in *N&Zh* December 1963 (No.12), pp.64-5; the discovery, by Edwin Hubble in the 1920s, that all visible stars were redder than would be expected indicated that the observable universe was expanding, and hence that the universe had a ‘point of origin’.

<sup>72</sup> Vladimir L’vov, ‘Zametki o Nauke’ in *Neva* February 1962 (No.2), pp.149-159

Bourgeois scientists prefer to consider that only our planet is suitable for life, naively concluding that other planets do not possess the atmosphere and temperature of Earth, and therefore that life is impossible there. Soviet scientists, on the other hand, consider life is, according to the Marxist laws of philosophical materialism, the highest stage of the development of matter and that it occurs everywhere that conditions are suitable, that these conditions do not have to be the same as our planet.<sup>73</sup>

However, this rather jarred with the usual argument that the Western press would seize upon any scientific novelty in the search for 'sensationalism', and a year later the same journal was mocking the fact that Western scientists were supposedly confusing interference from sunspots with alien transmissions.<sup>74</sup>

The possibility of extra-terrestrial life continued to provoke heated debates during the space age and the issue of whether aliens had visited Earth even led to 'rabid agitation' during discussions of the topic at the cosmonaut training facility at Star City.<sup>75</sup> Arguing over the nature of these inevitable alien fellow-Communists became one of the favourite tasks of Soviet popular science writers and science fiction authors in the late 1950s, as they debated different paths to sentience. Some writers, such as G. Gorin, argued that these alien races would take a form very different to mankind, or otherwise 'would it be worth flying a trillion kilometres to see a copy of the Earth?' Others, such as Ivan Efremov and the author Aleksandr Kazantsev argued that the applicability of dialectical materialism to other worlds meant that humanity would only encounter other humanoids in outer space. The author of an article summing up this argument, himself a professor of biology, stated 'based on the laws of the development of the material world, we can agree with I.A. Efremov that the intelligent inhabitants of the Universe must be, to some degree, "people".'<sup>76</sup> It is interesting that even this most harmless of arguments was clearly conducted using the rhetoric of dialectical materialism, encouraging readers to see even the most 'frivolous' issues through the prism of their Leninist upbringing. However, it also provides an insight into the kind of unconventional thinking, often termed 'sensationalism', that emerged on the fringes of popular science writing, where the

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<sup>73</sup> Lev Gumilevskii, 'Zarozhdenie Novoi Nauki' in *Z-S* November 1953 (No.11), p.32

<sup>74</sup> 'Signaly Kosmicheskikh Bedstvii' in *Z-S* December 1954 (No.12), p.21

<sup>75</sup> Apenchenko, 'Polgoda do Poleta Gagarina', pp.5-7

<sup>76</sup> Iu.M. Rall', 'Razumnye' in *N&Zh* November 1960 (No.11), pp.32-40

radical utopian Marxism of the 1960s encountered the boyish enthusiasm surrounding the space programme.

## VISIONS OF RED PLANETS: UTOPIAS AND DYSTOPIAS OF SPACE

One of the most persistent examples of ‘sensationalism’ in the Soviet popular science media surrounded the Tunguska ‘incident’ of 1907, when a collision in the Siberian tundra had produced what was, until Hiroshima, the most powerful explosion in recorded human history. The science fiction writer Aleksandr Kazantsev had first suggested, in 1946, that the meteorite might have been a nuclear-powered spacecraft crash-landing on Russian territory. This bizarre idea obviously had popular appeal and was adopted even at the highest levels of the propaganda establishment. During May 1953 Aleksandr Shelepin forwarded to Mikhail Suslov a list of films which the Komsomol wished to see produced, including ‘The Secret of the Tunguska Meteorite’, which would cover the possibility of interplanetary flight and life on other planets, as well as focusing on the eponymous meteorite, which ‘might have been the first spacecraft’. Shelepin supported the idea of producing such a film, believing its value was that it would ‘allow us to combine scientific content with fantasy and adventure’.<sup>77</sup> However, by the late 1950s, after a number of scientific expeditions had been dispatched to the area (amongst other things to determine the validity of Kazantsev’s hypothesis) the idea provoked greater dissent in the popular scientific press. K.P. Staniukovich argued, in a radio broadcast of 1959, that there was no evidence that the meteorite had been a spaceship, nor was there any evidence of heightened radioactivity in the blast-area.<sup>78</sup> A similar broadcast in September 1959, in response to a letter from a group of soldiers, again stated that Kazantsev’s hypothesis had no factual basis and had been rejected by the ‘majority of scientists’; the reports in *Sovetskaia Rossiia* that had provoked the letter ‘simply contradicted the facts.’<sup>79</sup> However, the more excitable members of the popular science community refused to let the issue lie. Frederick Zigel, writing in 1961, argued that the blast could not have been produced by a meteorite, as it had originated several kilometres above the ground and had too much force to be explicable in terms of purely kinetic energy. He also dismissed an alternative suggestion

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<sup>77</sup> Shelepin to Suslov, 7th May 1953: RGANI f.5/op.17/d.449/l.100

<sup>78</sup> Radio Broadcast, 5th April 1959, ‘Nauka i Tekhnika’: GARF f.6903/op.12/d.392/l.368

<sup>79</sup> Radio Broadcast, 6th September 1959, ‘Nauka i Tekhnika’: GARF f.6903/op.12/d.394/l.61

that the blast had been caused by a comet, and argued that the devastating blast, and the effect it had supposedly had on the Earth's magnetic field, could only have been produced by a fusion reaction equivalent to the detonation of an H-bomb.<sup>80</sup> However, a response to this article dismissed many of these ideas as 'absurd', stating 'science is constructed on verified facts, not fantasy', supported the comet hypothesis and again argued that levels of radiation in the vicinity of the blast were normal.<sup>81</sup> It was clear that the mystery of the Tunguska meteorite, which combined the mystique of both space travel and nuclear power, had immense interest for the Soviet public. Popular scientific opinion found such curiosity hard to dampen, even when it desired to do so.

However, the crashed Tunguska spacecraft was only one of numerous idiosyncratic ideas that floated around the popular media at this time. One radio broadcast in January 1960, presented in the form of a dialogue between a 'cynical' scientist and his 'enthusiastic' colleague, discussed the theory of the eccentric Soviet astronomer Iosif Shklovskii that Phoebus, one of Mars' moons, was artificial. It then went on to raise ideas similar to those of the notorious Erich von Däniken when it discussed the mysterious architecture of the Incas and other South American tribes: 'You can't exclude the possibility that the mysterious spheres serve as landing signs for Martian space-ships! Well, what do you say?' 'Mad fantasy!'<sup>82</sup> The editorial voice presented by the programme refused to come down on either side of the debate, leaving it to the listeners to decide for themselves. The 1961 science fiction film *Planeta Bur'*, which was co-written by Aleksandr Kazantsev, presented a similar discussion, this time between Soviet cosmonauts on the surface of Venus. Here, the commander of the mission, a respected Soviet Academician, notes that 'many of the mysteries of the past', such as the destruction of Atlantis and the wisdom of the ancient astronomers, as well as myths such as 'the descent of the Gods from the Heavens', seem to provide evidence that intelligent aliens had once visited Earth. His theory appears to be proven correct, as an unseen alien watches the Soviet spacecraft depart from the surface of the planet.

Generally the official Soviet line was to assert that all the mysteries of the universe were comprehensible to modern science and that mankind would never fall victim of unforeseen catastrophe. This applied not only to interplanetary threats such as supernovae, sunspots and meteorites, but also

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<sup>80</sup> F.Iu. Zigel', 'Iadernaia Vzryv' in *Z-S* December 1961 (No.12), pp.24-7

<sup>81</sup> I.T. Zotkin and K.P. Florenskii, 'Vstrecha s Kometoi' in *Z-S* May 1962 (No.5), pp.40-3

<sup>82</sup> Radio Broadcast, 30th January 1960: 'Problema Sputnikov Marsa': GARF f.6903/op.12/d.419/l.320-34

terrestrial hazards such as storms, earthquakes and volcanoes, all of which were being 'harnessed' by human knowledge. The portrayal of nuclear catastrophe or post-apocalyptic societies was thus effectively prohibited in Soviet science fiction at a time when they dominated Western portrayals of the future. A pamphlet published by 'Znanie' and written by the society's director for the natural sciences, G.A. Aristov, therefore refuted any idea that the sun would eventually expand and consume the Earth: 'Already, in 1933, Professor P.P. Parengo and B.V. Kukarkin proved that the Sun is not threatened with explosion, as it belongs to the number of stable cosmic formations....' The author also denied the possibility that Earth might collide with any wandering stars.<sup>83</sup>

However reassuring such assertions were, the public obviously continued to thirst for stories of mystery and potential danger, and popular science writers were happy to provide them. Frederick Zigel', the regular astronomy correspondent of *Znanie - Sila* and the author of a number of popular textbooks on astronomy, could be guaranteed to seize upon and publicise any fringe theory which was circulating, and he was regularly criticised for this tendency. One of his most prominent articles took as its starting point that it had been 'proved' there was vegetation on Mars (widely accepted, at least in the popular press, on the basis of the works of Gavriil Tikhov) and went on to argue that there was other proof of intelligent life on the planet, most notably that provided by its 'canal systems'. He continued

Turn your eyes to a characteristic feature of the canal system. They are a single system. There are no 'national boundaries' or other peculiarities. Personal interests were alien to those who created them. The Martians acted against the hostile forces of nature as one harmonious family.

Thus, not only was the Red Planet home to intelligent life, the structure of the canal system also provided irrefutable proof that the Martians had moved beyond nationalism or imperialism, and were already living in an advanced stage of socialism; this was Bogdanov's Martian science fiction novels read as documentary travelogues. However, Zigel' went further, to argue, based on Shklovskii's theory, that the Martians had now sought refuge in a space station orbiting their home planet, which astronomers had mistaken for a moon, Phoebus. This potentially raised the unorthodox possibility that an advanced socialist

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<sup>83</sup> G.A. Aristov, *Za Materialisticheskoe Mirovovzrenie v Astronomii* (Znanie: Moscow 1952), pp.16-7

society could have been brought to the edge of collapse by an unforeseen military or environmental disaster. Concluding his article, he called upon his critics to 'reject prejudice, to give full freedom to creative thought, and to attempt to resolve, with all our means, the fascinating question of life on Mars.'<sup>84</sup> However, more sober voices did respond to such articles. The science fiction author Valentina Zhuravlëva argued that theories about canals on Mars had a 'purely terrestrial origin', having emerged in the decade after the completion of the Suez Canal, although she accepted that it was 'universally recognised' that there was living vegetation on Mars. Her argument that such excitable theorists as Zigel' and Shklovskii drew their inspiration as much from their social and cultural environment as from the hard facts of scientific investigation was a timely reminder.<sup>85</sup>

Zigel' also raised another unlikely idea which later provoked the ire of the authorities. His book *Obitaemye Miry*, published in 1962, not only expanded on the theories described above but put forward the idea that the solar system had once been home to a planet that he named Phaeton, which had orbited where the asteroid belt now lay. Zigel' argued that the planet must have been the size of Mars and had probably been destroyed in a nuclear catastrophe. Having argued that an understanding of the destruction of Phaeton would shed light on 'the causes that lead to the collapse of life on any planet', he stated that this nuclear holocaust should serve as an example to mankind:

Humanity is just beginning to study and use the huge energy resources discovered in the heart of matter. Our knowledge in this area remains limited, and it would be unjustified foolhardiness to assert that the separation of energy from the heart of matter can only take place in ways we know.... It is possible that once upon a time, millions of years ago, on the surface of one of the planets of the solar system, an atomic or nuclear force unknown to us arose. An unimaginably powerful explosion shook the surface of the planet. This explosion fused the sands of the beaches and boiled off Phaeton's oceans, turning them into a glassy mass.... The explosion, destroying the whole surface, destroyed all organic life. Under this force the planet Phaeton split into pieces.<sup>86</sup>

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<sup>84</sup> F. Zigel', 'Na Marse - Razum?' in *Z-S* February 1961 (No.2), pp.20-3

<sup>85</sup> Valentina Zhuravlëva, 'Mars? Net, Prezhde Vsego - Zemlia' in *Z-S* December 1959 (No.12), p.19

<sup>86</sup> F.Iu. Zigel', *Obitaemye Miry* (Znanie: Moscow 1962), pp.45-6

This story, no matter how far-fetched, was in explicit contradiction to official ideological pronouncements, which stated that man would inevitably learn to harness and control nuclear power.

Another author whose ideas provoked difficulties, although he was considerably more scientifically literate, was Iosif Shklovskii, who later achieved modest fame through his co-operation with the American astronomer Carl Sagan. A professional astronomer, he also had a life-long interest in popularising science, which led to him being recruited as the 'scientific consultant' for Andrei Tarkovskii's film *Solaris*, as well as helping to edit a script adapted from a Strugatskii brothers' novel.<sup>87</sup> He was already considered suspect by the authorities: as a Jew he had been purged from the Shternberg Astronomical Institute during 1951, and during the 1950s he continued to be labelled as having 'nationalist and anti-Soviet views' due to 'Zionist' conversations he had conducted with fellow scientists while on a trip to Brazil in the late 1940s.<sup>88</sup> His 1962 *Vselennaia, Zhizn', Razum* took issue with a number of the sacred cows of Soviet cosmology, as might have been deduced by his cheeky introductory quotation from Pasternak. The book was approved by the President of the Academy of Sciences, Msitislav Keldysh, as part of the celebrations for the fifth anniversary of the launch of Sputnik I and did not have to be approved by Glavlit; as a result Shklovskii vowed to make a 'far from safe futurological investigation' and 'write the book freely, and unshackled.'<sup>89</sup>

The book worked on the assumption the universe was undergoing a process of evolution, rather than being static, and at times raised the possibility that it might be highly unstable. This was an implicit contradiction to the usual Soviet view of a predictable Newtonian universe. Even though he discounted the possibility, Shklovskii dared to ask 'Would our sun explode as a supernova? This problem would have great significance for the further development of life on Earth; such an explosion would burn up all the planets, with the possible exceptions of Jupiter and Saturn.' Accepting the principles of classical genetics, he also pointed out that any increase in solar radiation would have 'serious genetic consequences for different long-lived species'. Shklovskii made only passing attempts to criticise religion and even stated that attacks on the Western explanation for red-shift had 'a purely mathematical, rather abstract character; chief amongst these is a necessity for a genuine, non-simultaneously created universe.' This was tantamount to saying that

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<sup>87</sup> I.S. Shklovskii, *Eshelon - Nevydumannye Rasskazy* (Novosti: Moscow 1991), p.107

<sup>88</sup> *ibid.*, p.68

<sup>89</sup> *ibid.*, p.207-8

Soviet resistance to such ideas was purely ideological, rather than being grounded on scientific principle. Shklovskii admitted that the final section of the book had a 'philosophical character' and was open to debate, and in it he stated that 'a very small number of technologically developed civilisations.... will find the means to conquer the causes leading to their rapid collapse. And then they, harmoniously developing for a long time, will achieve an exceptionally high level of technological development.' In other words, humanity had a bright future, but only in the unlikely event it avoided a nuclear apocalypse. Continuing in this doom-laden tone he added that, even granted the possibility of viable fusion technology, 'after several thousand years the "technical potential" of society will fall to virtually nil. Consequently a civilisation, consciously desiring to maintain the level of development of its productive forces at a stable level must, so to speak, "balance on the knife-edge".' Shklovskii's answer to this was to ensure a 'qualitative change in life' in the future through the creation of biological 'robots', whose DNA would be altered to provide a longer life-span and enhanced capabilities; essentially, humanity would survive only through a widespread programme of genetic engineering. Therefore, by the end of the book, Shklovskii had called into question the orthodox Soviet views on genetics, nuclear power and cosmology.<sup>90</sup> The book 'raised quite a storm', especially provoking the indignation of the Lysenkoist Academician Aleksandr Oparin, to whom Shklovskii sent a letter explaining his point of view; it was returned, shredded.<sup>91</sup> The book was immensely popular, widely translated and, although in subsequent editions it was edited to remove its more controversial content, it was being reprinted well into the 1980s.

Shklovskii was able to use his popular science writing as a vehicle for his own ideas on other occasions: in January 1961 he received an urgent phonecall begging him to provide an article for *Izvestiia* on the landing of the first Soviet satellite on Venus. He was able to use what he termed his 'monopolistic position' to ensure the paper printed his article without alterations, allowing him to include an attack on the 'foolish astrobiology' of Gavriil Tikhov, as well as a poem by Nikolai Gumilev. This was the first time the poet had been published in the USSR since his death, and Shklovskii received letters of thanks from old Acmeists, while Western correspondents interpreted this as an attempt to rehabilitate the poet. Shklovskii notes: 'A storm was raised in Moscow. Manchurov [from *Izvestiia*] was saved only by his wife's high post.

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<sup>90</sup> idem., *Vselennaia, Zhizn', Razum* (Nauka: Moscow 1962), esp. pp.11, 52-3, 55, 63, 153, 197, 217, 219, 233-5

<sup>91</sup> idem., *Eshelon*, p.210

All the same, they couldn't find any "executioners". But for several months journalists of all ranks kept their distance from me.<sup>92</sup> Stories such as this make it clear that any attempts to divide the Soviet intelligentsia into *fiziki* and *liriki* were clearly artificial.

Attempts were made to restrain the more idiosyncratically utopian ideas about space, and the more orthodox writers therefore tended to err on the side of caution when describing the future of the space programme; even after the flight of Sputnik I many authors predicted it would be ten or fifteen years before a man was sent into space and twenty before man landed on the Moon (although it was always assumed it would be the USSR which would get there first). During 1954 the popular science journal *Znanie - Sila* issued a 'Commemorative 1974' edition, supposedly to celebrate the first manned Moon landing, with the editors stating in their conclusion the first men to step foot on the Moon were 'already alive and some of them may be holding this journal in their hands.'<sup>93</sup> An article on nuclear power, published in 1955, explicitly stated that conventional, chemical fuel could never provide the thrust necessary for flights to the Moon, and therefore a serious space programme would have to wait for the development of atomic rockets.<sup>94</sup> Even after the launch of Sputnik such caution was shown by some writers and propagandists; a radio broadcast from 1959 had all mention of imminent flights to Mars or passenger flights into space edited out.<sup>95</sup> However, when the subject was not the immediate future more unconventional ideas could be discussed openly, probably as they were considered harmless fantasy. One October 1960 broadcast adopted Tsiolkovskii's proposal for the radical transformation of the solar system in order to meet the needs of mankind, describing how Uranus would be broken into smaller sections and settled by mankind, while Mars and Venus would be preserved as nature reserves [*zapovedniki*].<sup>96</sup> These ideas were a clear extension of the Great Stalin Plan for the Transformation of Nature or the grand Soviet river diversion schemes, and would presumably have been just as successful.

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<sup>92</sup> *ibid.*, p.122-3

<sup>93</sup> *Z-S* November 1954 (No.11), p.2-32

<sup>94</sup> V.A. Mikhailov and M.G. Mkrtychev, 'Mirnoe Ispol'zovanie Atomnoi Energii' in *N&Zh* January 1955 (No.1), pp.7-10

<sup>95</sup> Radio Broadcast, 27th September 1959: 'Luna Dostignuta, Chto zhe Dal'she': GARF f.6903/op.12/d.394/l.422-31

<sup>96</sup> Radio Broadcast, 4th October 1960: 'Do Samoï Dalekoi Planety, ne tak uzh Druz'ia, Daleko!': GARF f.6903/op.12/d.421/l.43

A long over-due campaign against 'sensationalism' in the popular science media eventually began after the establishment of the Ideology Commission in late 1962 and the subsequent Central Committee plenum on ideology, held in June 1963. Following this, V.I. Snastin, the first deputy of the Central Committee's Ideology Section, delivered a speech for 'Znanie', reminding the society of its responsibility to use scientific propaganda to further Michurinist teaching and combat 'idealism' and religion. However, he also added

*Literaturnaia Gazeta*, in the race for publicity and sensationalism, published a huge article against cybernetics, and also speeches directed against Pavlov's teachings. The latest issue of *Literaturnaia Gazeta* had pages of a blind, scholastic discussion of life on Mars. Certain literateurs also flippantly expressed their ideas on different questions of medicine, and in particular treatments of cancer, sometimes supporting quacks and witch-doctors by speculating on the difficulties faced by science.<sup>97</sup>

This was a clear signal to the propagandists in 'Znanie' to take a more sober approach in their work propagandising scientific achievements. Some scientists also saw a chance to take advantage of the increasingly restrictive cultural atmosphere in order to lobby for their own pet projects; the President of the All-Union Astronomy Committee had written to the Central Committee in April 1963, complaining about the absence of a popular astronomy journal in the USSR, contrasting this unfavourably with the situation in the GDR and Czechoslovakia. He argued

The absence of a popular-science journal on astronomy makes propaganda of astronomy essentially uncontrolled and opens the road up to flood of different articles and declarations in which, under the guise of recent achievements in astronomy, semi-literate reports about 'hypotheses' and 'facts' are made in a sensationalist spirit, deceiving people who are far-removed from astronomy, and often discrediting Soviet science in the eyes of specialists from other countries.<sup>98</sup>

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<sup>97</sup> Plenum of 'Znanie' Central Committee, 10-11th September 1963: GARF f.9547/op.1/d.1304/l.57

<sup>98</sup> I.Ia. Martynov and R.V. Kunitskii to CPSU CC, 13th April 1963: RGANI f.5/op.55/d.28/l.73-4

The issue was finally dealt with by a meeting of the Ideology Commission held during February 1964, which involved leading scientists such as the physicist Lev Artsimovich, ideologues like Boris Kedrov and Vladimir Kirrilin and leading popular science writers and editors, such as V.A. Mezentsev, Oleg Pizarzhevskii and Khrushchëv's daughter, Rada Adzhubei, the deputy editor of *Nauka i Zhizn*.<sup>99</sup> The notes prepared by the Ideological Commission prior to the meeting criticised a number of the works already discussed. Shklovskii's *Vselennoi, Zhizn', Razum*, was condemned for 'seriously discussing the denigrating, depressing "theory" of the inescapable ruin of civilisation. According to the reports of Western scientists conveyed in the book the world is already approaching the moment of ruin.' It was argued that the idea of aliens having visited Earth, mentioned in that book and many others, 'entirely contradicts existing information about the origin and development of life on Earth and reinforces biblical myths about the creation of life on Earth by God.' Zigel's *Obitaemye Mire* was criticised further:

The description of the planet Phaeton, in all its details, is very reminiscent of Earth. This description of the ruin of Phaeton gives the reader impressions about the fragility of human culture, inspires distrust in the bright future of humanity and objectively aids demobilisation, weakening [our] influence over the reader. It should be noted that in this small book F.Iu. Zigel' puts forward fourteen hypotheses contradictory to contemporary science.

According to the Ideological Commission, Kazantsev, having put forward the idea that the Tunguska meteorite was a crashed nuclear spacecraft, had proven capable of using 'any means, right up to falsification, to deceive the reader'. Kazantsev's ideas about Earth being settled from space did not 'contradict materialism in themselves' but were 'directly harmful to our ideological work. Biblical texts are used in confirmation of the "hypothesis". Such an equation of unearthly travellers with God gives a firm basis for preachers who wish to provide a "scientific" basis for biblical legends.'<sup>100</sup> The meeting resulted in a co-ordinating council being established to oversee popular science works; it was ordered to draw up, by July 1964, a list of popular science books suitable for publication, including some which would rectify

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<sup>99</sup> List of Attendees at Ideology Commission Meeting, 21st February 1964: RGANI f.72/op.1/d.22/l.12-13

<sup>100</sup> N. Krasnov et.al. to CPSU CC, 18th February 1964: RGANI f.72/op.1/d.22/l.7-8

problems of 'worldview'. The Union of Writers would consider establishing a section of popular-science writers and 1964 would see the first Day of Popular Science Books, a typically Soviet response to ideological issues.<sup>101</sup> There is no evidence that the decisions reached at the meeting had any significant impact on the way science, and space in particular, were portrayed in the Soviet media, but they show the extent to which 'sensationalism' was seen as a threat to the credibility of Soviet science by the last years of the Thaw.

### ASSESSING POPULAR RESPONSES TO SPACE

Most accounts of the Soviet space programme recount the genuine sense of enthusiasm it stirred up amongst the Soviet population and how, in contrast to the more overtly political events of the era, crowds reacted with spontaneous interest to dramatic triumphs such as the flights of Sputnik 1 and Iurii Gagarin. Certainly it is true that the majority of Soviet citizens were immensely proud of the space programme and saw it in a way which the authorities would have considered appropriate; Fedor Burlatskii estimated that 90% of the population of the USSR felt genuine and spontaneous elation on hearing about Gagarin's flight.<sup>102</sup> Surveys carried out by students of MGU under the supervision of Iurii Aksiutin in 1998 and 1999 found that 64% of respondents in 1998, and 87% of respondents in 1999, recalled that they had 'been inspired and experienced joy and delight' on hearing of the launch of Sputnik, and that 49% in 1998, and 34.5% in 1999, recalled feeling a sense of pride in their country. These figures indicate a more consistent positive response amongst the population than to any of the other social and political events between 1953 and 1964 about which the respondents were questioned.<sup>103</sup> The appropriate tone for such jubilation was perhaps captured best by the critic Boris Apagov, in an article written in 1966, which describes the feelings the author had on hearing of the launch of Sputnik I:

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<sup>101</sup> Protocols of Ideology Commission Meeting, 21st February 1964: RGANI f.72/op.1/dd.22/l.9-11

<sup>102</sup> Fedor Burlatsky, *Khrushchev and the First Russian Spring* (Weidenfeld and Nicolson: London 1991), p.132

<sup>103</sup> Aksiutin, *Khrushchevskaiia 'Ottepel'*, p.247

Something happened, not only in science, not only in space. Something vital happened in my head, in all our heads.... Now everything on Earth seemed different, the autumn wind, the trees in the breeze, the storms on the sea, the stars between the rosy clouds over Moscow.... This was Earth as before, but now we saw it from there, from a point in space.... I am it, and it is me. This little metal sphere that I have never seen, and know nothing about the construction of, seems part of me, and I am part of it.<sup>104</sup>

The critic Vitalii Troianovskii adopts a similar messianic tone when describing the return of Iurii Gagarin to Earth, as portrayed in the contemporary documentary film *Pervyi Reis k Zvezdam*. He presents this event not only as a moment of unprecedented social unity, but also as a collective act of redemption after the traumas of the Stalin era and the Great Patriotic War:

Yes, that's him, and he couldn't be any other way. And his smile, this is the justification and expiation [*iskuplenie*] for all that has gone before it, all the suffering and deception. And the first words of Gagarin himself? 'I'm a normal Russian person. Like so many across the Union, like dozens, like hundreds of Soviet youths and girls....' The words have another meaning, beneath the surface: the miracle is not that I was in space, but that I'm a normal Soviet, like you.... *Pervyi Reis k Zvezdam* is a document. It fixes a society unified as never before, and experiencing the peak of its belief in itself....<sup>105</sup>

Feelings of elation, expressed in more prosaic terms, were also widespread in letters that were received by the central authorities. After the launch of Sputnik II, for instance, Pavlov from Kaliningrad wrote a letter stating: 'This.... This is simply magnificent. I can't find words. This really is the best present for the fortieth anniversary of October. I congratulate all the creators of the sputnik from the bottom of my heart. I want to labour further for the good of my country.' Chapkaeva, from Dagestan, echoed his sentiments: 'This remarkable feat of Soviet scientists fills the heart of all Soviet people with pride. The sputnik is the child of our nation's genius - it could only be done with the free labour of a free people.' G.E.

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<sup>104</sup> B. Apagov, 'Khudozhnik i Nauka', p.26

<sup>105</sup> Vitalii Troianovskii, 'Chelovek Ottepeli (50-e Gody)' in Troianovskii (ed.) *Kinematograf Ottepeli: Kniga Pervaia* (Materik: Moscow 1996), pp.5-76, here at p.63

Gardus, a former nursery-school teacher from Stalino, was one of many correspondents who, often emphasising they were too old to engage in socially-useful labour, volunteered to man Sputnik III; indeed, such requests were so common in the late 1950s that the All-Union Astronomical Society had a form letter with which to respond to them. Finally a precocious eight-grader from Kursk added: 'I don't believe in religion anymore, and after the launch of the first satellite of the Earth my disbelief has become greater.'<sup>106</sup> A contemporary foreign observer, George Kline, also noted how anti-religious vandals had scrawled 'Flight to the Moon [sic], 1957' on the side of a church in Kiev, in a statement of dialectical materialism which, although crude, would undoubtedly have met with the approval of the authorities.<sup>107</sup> The respondents to Iurii Aksiutin's questionnaire recall a general sense of jubilation and delight in Moscow after the launch of Sputnik I; one railway labourer recalled 'the chaps all got drunk, but on account of the celebration, the *militia* didn't arrest anyone.' A student stated that the launch of Sputnik confirmed the opinion that 'anything was within our power', while a soldier recalled that 'this cocked a snoot [*uterli nos*] to the whole rotting West' and a worker on an MTS said this 'meant that we were better and smarter than anyone else.'<sup>108</sup>

Such unquestioning enthusiasm, although widespread, was not universal and children returning home from school astronomy lessons could often provoke arguments with their parents and grandparents, who refused to see the universe in the same terms as these zealous students. One girl recalled having tried to convince her grandmother God did not exist: 'Grandma, Gagarin has flown into space, and he didn't see God there.' Her grandmother simply replied: 'God is invisible children.' A second grandmother was not so mild-mannered and when asked 'Where can your God be, if rockets are flying up there?' she responded angrily: 'Oh, oh, sinner, sinner! What are you saying? You can't say that!' One girl who had been raised by her grandmother to have a very literal biblical belief, imagining God as an old man sitting in the clouds, recounted how 'when Gagarin flew into space, well at that moment, we all became atheists.' However, as a result of this she did not become a militant atheist; her attitude to religion simply became 'one of indifference'.<sup>109</sup>

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<sup>106</sup> Review of Letters from Radio-Listeners, November 1958: GARF f.6903/op.10/d.14/l.8, 28

<sup>107</sup> George Kline, *Religious and Anti-Religious Thought in Russia* (University of Chicago: 1968), p.168

<sup>108</sup> Aksiutin, *Khrushchevskaiia 'Ottepel'*, p.247

<sup>109</sup> Bezrogov, 'Mezdhu Stalinym i Khristom'

The crudity of much Soviet propaganda surrounding the space programme actually meant that even the most unsophisticated priests found it relatively easy to counter. One Lithuanian priest reportedly asked his congregation: 'Who is smarter - the engineers who have made a space rocket, or he who created the world and the stars?'<sup>110</sup> One atheist propagandist reported that the following pamphlet had been found circulating, having been printed by a Baptist sect and circulated by hand:

How short is the age of my friends  
All these artificial moons  
As soon as they arrive in space  
They raise their voices without end  
And claim that I was born without a father

This is nonsense, but it is elevated in scientific terms  
I, the Moon, known to all, am indignant at human ignorance  
I say to the heart of each and all  
That Heavenly God is my creator<sup>111</sup>

Religious believers were also quick to react to some works of popular science, even those which seemed relatively moderate in their critique of the religious worldview; Iosif Shklovskii describes having received abusive letters from people he describes as 'psycho-Baptists' after the publication of *Vselennaia, Zhizn', Razum*, which was actually surprisingly liberal by the standards of the time.<sup>112</sup>

Criticism of the space programme was not couched only in religious terms, but could also be the result of a more general malaise with the 'grand projects' which the Soviet authorities became obsessed with on such a regular basis. Edward Crankshaw, the *Observer's* correspondent in Moscow, recalls one meeting of the late 1950s:

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<sup>110</sup> A. Snehkus, 'Vazhneishee Uslovie Vospitaniia Novogo Cheloveka' in *Kommunist* March 1962, p.50

<sup>111</sup> All-Russian Conference on Problems of Communist Construction, 23rd-26th January 1962: GARF f.9547/op.1/d.1274/l.167: Untranslated, the poem reads 'Kak kratok vek podrug moikh/Vsekh Lun Iskusstvennik/Kak tol'ko v kosmos popadut.../Zvuchit ikh golos bez kontsa/Chto ia rodilas' bez ottsa.../Bez dum'e eto, no ono v nauchnyi smysl vozvedeno/Ia vsem izvestnaia luna liudskoi t'moi vozmushchena/I govoriu dlia vsekh serdets/Chto bog nebesnyi moi tvorets'

<sup>112</sup> Shklovskii, *Eshelon*, p.176

A young Communist, loyal but puzzled, twenty-six, standing at a crisis in his life and wondering whether to go on from the *Komsomol* to join the Party, had been talking about the sputniks with a certain pride: 'How odd,' he said, 'to think of them up there now! At this moment, endlessly circling - little bits of the Soviet Union cruising through infinity. I wonder where they are at just this moment? I wonder what they're *doing* up there in space!'

'Seeking God!' I murmured, a little wearily.

That, of course, was a great joke. Sputniks in search of God! He must remember to tell his friends that one.

Then suddenly he broke off and exclaimed: 'But you're being sarcastic. It may be a good joke; but who really knows? I sometimes wonder if instead of sending up sputniks we should not be seeking more down here.'<sup>113</sup>

The attitude that the space programme was essentially a waste of money, and a distraction from more important terrestrial issues was certainly widespread in the considerably wealthier United States by the mid-1960s.<sup>114</sup> Soviet propagandists found themselves unable to counter such criticisms; they simply accepted it as a matter of unquestioning political dogma that the Soviet space programme was vital to the country's prestige, and were left speechless on the rare occasions when critical young members of audiences asked *why* the Soviet Union was sinking such resources into the space programme.<sup>115</sup> This is perhaps unsurprising, given that space propaganda emphasised issues of political prestige and utopian moral development, rather than focusing, as NASA did, on the 'trickle-down' impact of newly-developed technologies for the general population. The triumphs of the space programme even provided source material for the growing criticism of Khrushchëv's increasingly autocratic leadership; several of the respondents to Iurii Aksiutin's questionnaire recalled that people had remarked at the time of the launch of Sputnik II that 'A new satellite has been launched and reached orbit. There's a dog on board. It'd be better

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<sup>113</sup> Edward Crankshaw, *Khrushchev's Russia* (Penguin: Harmondsworth 1959), p.138

<sup>114</sup> See David E. Nye, 'Don't Fly Me to the Moon: The Public and the Apollo Space Program' in *Narratives and Space: Technology and the Construction of American Culture* (University of Exeter: 1997), pp.147-60

<sup>115</sup> Meeting of the Commission on Questions of Oral and Print Propaganda amongst Youth, 24th April 1961: GARF f.A-561/op.1/d.620/l.22

if it was Nikita.<sup>116</sup> Therefore, while it is true to say that the majority of the population supported the space programme with genuine enthusiasm, the crudity of much propaganda and the way in which the space programme was sold to the population in essentially political, rather than pragmatic, terms meant that it was hard to defend against those critics who did emerge.

Letters sent to the All-Union Astronomical Society during the late 1950s and early 1960s clearly demonstrate the divergent ideas and theories that the space race provoked. The society spent much of its time corresponding with its many members, both adults and children, across the USSR; not only did its experts offer advice on how to get telescopes and textbooks, they also responded to UFO sightings by their members and offered critiques of the often idiosyncratic works of amateur astronomy which they were sent. Some of these works were simply scientifically illiterate and made reviewers question why their authors had attempted the task of completing a manuscript; one such work explained how the speed of rotation of the planets was dependent on their surface temperature and how radiation travelled from the Sun to Earth not through a vacuum but along 'air tubes'.<sup>117</sup> A reassuring letter had to be sent to one woman in early 1957, who was concerned that the imminent launch of an artificial satellite would cause a gravitational imbalance between the planets and, potentially, an earth-shattering disaster. She was calmly informed that the satellite 'should show no influence of any kind on the gravitational pull between the planets.... And the stars are so far away that they will not "feel" the satellite.'<sup>118</sup> Other authors made ideological errors, such as one author who, having refuted the existence of God, went on to describe how the elements, and then galaxies and planets, had come into being in a vacuum. The reviewer noted in response: 'Not one Soviet person, understanding the basics of dialectical materialism, can allow thoughts of "the arising of matter". Only foreign scientists write about this, idealists who defend God's creation of the world.'<sup>119</sup> Another author who tackled the same problem was told: 'Besides, such views as the creation of matter from nothing are preached today only by foreign scientists, idealists, mostly the English. These views are alien to Soviet people.'<sup>120</sup> A third author was praised for having the 'correct philosophical views' but it was then noted: 'Your assertion that "all measurements, both physical and mathematical, are products of the highest form of

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<sup>116</sup> Aksiutin, *Khrushchevskaiia 'Ottepel'*, p.255

<sup>117</sup> V.A. Bronshten to Poliakov, 5th April 1954: ARAN f.1510/op.1/d.316/l.49

<sup>118</sup> N.D. Rozenblium to Khomiakov, 23rd May 1957: ARAN f.1510/op.1/d.492/l.34

<sup>119</sup> V.A. Bronshten to Tishchenko, 24th March 1955: ARAN f.1510/op.1/d.316/l.50

<sup>120</sup> V.A. Bronshten to Nikitin, 25th March 1955: ARAN f.1510/op.1/d.316/l.53

the development of matter, the brain” is incorrect.... This is an idealist view....<sup>121</sup> It can only be assumed that the authors of such manuscripts had never read, or at least never understood, a Soviet popular science publication in their lives, so naively unorthodox were their views.

Other authors made an attempt, although often ham-fisted, to adapt their ideas to Marxist-Leninist postulates, but failed to win the approval of reviewers; one correspondent was told his claim that atoms were the ‘dialectical repetition of galaxies’ was merely ‘an example of the empty juggling of clever phrases, expressing nothing concrete.’<sup>122</sup> Such authors did not allow their own lack of scientific credentials to hold them back; one noted he had been prompted to begin his work, *Teorii Dvizheniia Tel i Sovremennaiia Astronomiia*, after hearing a government appeal to inventors in October 1956. He claimed that he was making an ‘attempt, by the methods of the *kolkhoz* scientist Terentii Mal’tsev, to thoroughly plough up certain areas of theoretical physics and, in part, show the essence of Newtonism’ by debunking the special theory of relativity, the acceptance of which he claimed was a ‘lamentably tragedy in the history of science.’ However, he did admit, in commending his work to the society’s reviewer: ‘Having chosen such a dangerous path, I recognise that the ideas I have described may not correspond to the facts.’<sup>123</sup> Such attempts to overthrow accepted scientific theory, at a time when Einstein’s work was only beginning to garner official public support in the USSR, relied not only on a crude and out-dated understanding of physics but also on the rhetoric of the Lysenkoists and their imitators. All these letters indicate the vast enthusiasm that was generated by the space programme, but demonstrate that little of this energy was being directed along productive or useful channels. Clearly it was in no-one’s interest to have Soviet citizens locking themselves away in the evenings to slave over vast cosmological treatises without, apparently, having consulted either *The Dialectics of Nature* or a basic astronomy textbook.

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<sup>121</sup> V.A. Bronshten to Sidorov, 25th March 1955: ARAN f.1510/op.1/d.316/l.52

<sup>122</sup> V.A. Bronshten to Gadaev and Baimuradov, 25th March 1955: ARAN f.1510/op.1/d.316/l.54

<sup>123</sup> A.I. Iurashev to All-Union Astronomical Society, 12th March 1958: ARAN f.1510/op.1/d.545/l.29-31

## CONCLUSION

The early years of the space race, at first glance, provided an unprecedented victory for Soviet propaganda, visible evidence of the superiority of Soviet technology, of man's ability to subordinate the most extreme forces of nature to his will and of Khrushchëv's assertion that the USSR would 'catch up and overtake the West'. Images and narratives of space flight became ubiquitous in the Soviet media and every attempt was made by politicians and ideologues to capitalise on the triumphs of Sputnik and Gagarin. However, behind the immediate Promethean vision of the conquest of space, which is so familiar from Soviet newspapers and posters of the era, the space race was manipulated to present a cosy, familiar and conservative image of Soviet man, Soviet woman and Soviet society. The Soviet cosmonauts, for all their youthful enthusiasm and good looks, were shown to embrace the artistic, aesthetic and moral values of an older generation. They were portrayed as being loyal to the family, the Party and the nation and returned from space with the simple, and reassuring, message that there was no place like home. The moral virtues of discipline and obedience, as taught to cosmonauts in the military, were ultimately better suited to Soviet society than the curiosity, personal conviction and iconoclasm celebrated in portrayals of scientists.

Such conservative rhetoric was accompanied by a concerted campaign to reshape the 'worldview' of Soviet citizens, most notably through the use of space propaganda in the anti-religion campaigns. Propagandists had an unflinchingly naive belief in the power of cosmology and astronomy to convert 'backward' sections of the population to dialectical materialism. However, the emotive response which the space race provoked in these years encouraged many propagandists to indulge in extremely idiosyncratic analyses of the significance of space for humanity; such works occupied an uneasy middle ground between scientific fact, pseudo-science, Marxism-Leninism and popular folk belief. Therefore, although the evidence suggests that the overwhelming majority were stunned and impressed by the triumphs of the space race, it would be a clear exaggeration to claim that this led, in a linear fashion, to greater personal commitment to the Party, the Soviet state or 'Khrushchëvism'. The most that could be said is that, as people craned their necks and looked to the heavens, hoping to catch a glimpse of Sputnik, they were led both to conceive of new possibilities for the future and to question received wisdoms about their place in the world. Nothing was to be more characteristic of the spirit of the 1960s.

## CONCLUSION

This thesis has demonstrated the vast scale of popular science propaganda in the Khrushchëv era and it has shown how pervasive representations of science and technology were in the popular culture of the 1950s and 1960s. Examples have been given of how public scientific opinion interacted with the Party-state bureaucracy, and where differences arose during this process of interaction. The evolving ideological prism through which science was perceived has been analysed, and it has been shown that disagreements continued to arise over the ideological content of scientific propaganda. Some of the popular reactions to the scientific achievements of the era have been discussed, although such responses can still only be partially reconstructed with the surviving sources. It is now time to draw some general conclusions.

One conclusion of this thesis is that the majority of Soviet scientists were neither 'dissidents' nor 'conformists' but maintained an ambivalent relationship with the Soviet Party-state. This had consequences for the involvement of public scientific opinion in the field of scientific propaganda. The overwhelming majority of scientists were loyal to the government and sincerely wished to see the wider population educated according to scientific, rationalistic principles. Effective scientific propaganda would not only contribute to the creation of a modern, educated population, but would generate publicity for scientific research and boost scientists' own social standing. The attitudes of the Soviet Party-state and the Soviet scientific intelligentsia towards scientific propaganda were therefore broadly compatible. They both ultimately drew their inspiration from the nineteenth-century radicals' project of bringing enlightenment to the 'dark people' of Russia. Scientists were more often rebuked for their idiosyncratic interpretations of socialist utopianism than they were for conscious attempts to undermine the 'Party line' in science.

However, at the same time, Soviet scientists were a self-consciously professional body. Most believed that the promotion of science would inherently foster a modern, rationalistic worldview in the population, without the need to dress it up in an explicitly dialectical materialist garb. When the demands of propaganda ran counter to their own professional instincts, and they perceived science to have been vulgarised, many ceased to participate. Scientific-atheistic propaganda therefore failed to find much vocal support amongst scientists; while it is probably true that only a minority of scientists were practising

religious believers, few of them felt it was their place to lecture the population on their personal beliefs. Similarly, scientists went to considerable lengths to present a public counter-balance to the claims of the Lysenkoists, who they believed deprived scientists of legitimate resources, deceived the public and besmirched the reputation of Soviet science abroad. They made good use of the Soviet media, and Soviet rhetoric, for this purpose, and most of them saw themselves as doing a service to both their own scientific community and the Party-state by opposing Lysenko. Finally, many scientists found that scientific propaganda involved a considerable expenditure of time and effort, which was often wasted due to the inefficiency and inflexibility of organisations such as 'Znanie'. Scientists who theoretically supported the idea of scientific propaganda often found the reality of it deeply disappointing.

A further conclusion of this thesis relates to the changing ideological interpretation of science that emerged during the 1950s. Broadly speaking, during the Thaw, scientific research came to be presented as a universal phenomenon, the conclusions of which were valid regardless of which social system had produced them. Thus, Soviet and Western scientists could communicate and co-operate in the search for objective truths, and the work of Western scientists could be openly publicised in the Soviet Union. This did not mean that the distinction between socialism and capitalism was entirely lost; socialism continued to be promoted as the system which best funded science, and ensured that it would be used towards peaceful, collectivist goals rather than to promote exploitation and aggression. However, two broadly different interpretations of science continued to co-exist alongside one another. The first was a traditional Stalinist view of science, which had reached its apogee in the late 1940s: this regarded science as a static body of doctrine, which could not be engaged with critically for fear of rocking the ideological foundations of the state. Lysenkoism was the most extreme expression of this tendency, regarding competing scientific schools not only as philosophically erroneous but as traitors to the body politic. Such an interpretation encouraged the view that at no price should the public be informed of 'discussion topics' in science, for fear that they would lose faith in the absolute truths delivered from on high. These concerns continued to inform much scientific propaganda of the Khrushchëv era, most notably that devoted to scientific-atheistic themes.

However, a new interpretation also emerged by the late 1950s, which recognised that science was not a body of knowledge, but a process. This interpretation was promoted in propaganda that celebrated the virtues of curiosity, personal integrity and unflinching courage in the face of received scientific authority.

The most pure expression of this tendency was undoubtedly found in the novels and films of the late 1950s and early 1960s, but it also appeared in non-fiction and in general discussions of science and society in this period. Plurality of scientific opinion was now considered to be legitimate, and indeed desirable, and science was portrayed as a personal journey of discovery for the scientist, in which the process was at least as important as the results to be achieved. Even the Lysenkoists, by the early 1960s, had to tailor their rhetoric around the assumption that different approaches to a single problem could be legitimate. This celebration of curiosity and iconoclasm was intrinsically tied with the broader values of the Thaw, which embraced the existential search for truth and were ultimately to threaten to destabilise the accepted values of the Soviet Party-state. Such a view of science was not, in the long run, compatible with authoritarianism and would always co-exist problematically with Soviet political reality.

The final conclusion of this thesis relates to popular responses to science propaganda. Popular science had considerable appeal in this period, and the vast majority of Soviet citizens seem to have been immensely proud of the scientific and technological achievements of the Soviet state, of which the dramatic feats of the early space race were the most obvious example. Soviet citizens still had relatively little interaction with the West and were confident that Soviet science and technology was amongst the best in the world. The 'cult of science' can definitely be said, in this sense, to have had broad appeal. However, the reliance of Soviet citizens on the official media also had drawbacks, as the information provided by these media was often incomplete or erroneous. The general population, a significant section of which lacked any adequate formal grounding in the natural sciences, could not always assimilate the latest scientific propaganda into a coherent, materialist worldview in the fashion which propagandists clearly hoped.

Thus, the reaction of the population to scientific propaganda was not always that which was intended. The regime's first priority in promoting scientific propaganda, combating the influence of religious belief, enjoyed very little success. Examples have been cited here of genuine 'conversions' to supposedly rationalist values, but it is unlikely that scientific-atheism ever made a significant contribution to the secularisation of Soviet society. It seems more likely that, in many cases, misunderstood scientific ideas entered into a creative synthesis with pre-modern worldviews, creating an atmosphere in which pseudo-science flourished. This situation was aided by the enduring Stalinist view of science as doctrine, which stressed the existence of a single scientific 'truth' rather than the integrity of the scientific process, and by

figures such as Lysenko and Lepeshinskaia who took advantage of such ideas to overthrow long-established scientific theories. Popular science therefore often became not a tool with which to combat mysticism, but an alternative source of irrational ideas. This is not to suggest that this popular conceptualisation of science was unique to the Soviet Union, but rather to indicate that Leninist notions of creating a genuinely 'rational' worldview were doomed to failure partially due to their own internal contradictions.

During the 1950s and 1960s, when popular environmental movements, the decline of the space programme and the Chernobyl' disaster were still decades away, science and technology were generally accepted as making a positive contribution to the development of Soviet society. Science, in this sense, may have lent some legitimacy to the Soviet regime, as a collective interest in scientific understanding brought the state, scientists and the general population together. However, differing interpretations of science continued to be put forth publicly, and there remained the danger that science, if seen as a process rather than a doctrine, could serve to legitimise pluralism and undermine the official ideology of the authoritarian Party-state. This problem of discordant interpretations was compounded by the material and logistical difficulties that prevented scientific propaganda fulfilling its tasks, and the unintended ways in which the general population interpreted what scientific propaganda they were fed. Therefore, while scientific propaganda may have done much to condition the worldview of the Soviet population, and to shape the interaction between state, scientists and public, it fell short of the misconceived goals put before it.

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<i>Molodaia Gvardiia</i>	<i>Vestnik Akademii Nauk SSSR</i>
<i>Narodnoe Obrazovanie</i>	<i>Voprosy Filosofii</i>
<i>Nash Sovremmenik</i>	<i>Voprosy Istorii Religii i Atheizma</i>
<i>Nauka i Religiiia</i>	<i>Voprosy Literatury</i>
<i>Nauka i Zhizn'</i>	<i>Znanie - Sila</i>
<i>Neva</i>	<i>Zvezda</i>
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