

1 Introduction: Science and the Transformation of International Politics

Changes in State Purpose

After the Napoleonic wars, the great powers of Europe met in Vienna to forge a peace settlement. After eight months of wrangling and a crisis that almost returned Europe to war, the great powers signed the 1815 Final Act. The main function of the Final Act was to distribute the territories held by the victorious coalition. In so doing, it delineated a balance of power that had been carefully and precisely calculated on the basis of population statistics. However, in a little-noticed clause by which the Russian Empire took possession of the Duchy of Warsaw, the Emperor Alexander reserved the right to conduct the “interior improvement” of the Polish state.¹ The appearance of improvement at the heart of international order marked a transformation in ideas about the goals or purposes of states. In the eighteenth century, international order was premised upon establishing a balance of power conceptualized as a “gigantic mechanism, a machine or a clockwork, created and kept in motion by the divine watchmaker.”² This mechanistic representation of the balance drew on the new natural philosophy as articulated by Copernicus, Galileo, Boyle, Descartes, Newton, and others.³ However, at the time of the Vienna Congress, the image of a balance governed by mechanical, deterministic natural laws was being displaced by the notion that humans could harness the power of knowledge to understand and manipulate the laws of nature.

By 1815, states no longer sought to obey the “rational maxims” imposed by the balance. Rather, they sought to construct and change the balance

¹ Final Act of the Vienna Congress 1815, 76.

² Morgenthau 2006 [1948], 214.

³ This has long been noted by scholars of International Relations, but the phenomenon has not been systematically investigated and theorized. In addition to the Morgenthau reference above, see Gulick 1955; Butterfield 1966; Keens-Soper 1978; Anderson 1993; Sheehan 1996.

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through the application of knowledge to problems of government.⁴ Over the course of the nineteenth century, the idea of improvement emerged as a central concept in international politics. Improvement was incorporated into British imperial ideology and appeared in important international treaties regarding trade and colonial conquest. In the latter half of the nineteenth century, Darwinian ideas were used to reconceptualize improvement as a process of evolutionary development. The concept of growth then entered international order after the Second World War as new economic techniques were used to represent state goals in statistical terms as gross national product and, later, gross domestic product.⁵ In short, the Congress of Vienna stood between a series of orders based on balance of power purposes and a succession of orders oriented to notions of progress.

We often take the goals of improvement, development, and growth for granted. But these purposes emerged only recently and they are quite different from the ends that underwrote international order in the sixteenth and seventeenth centuries. In the sixteenth century, the central concepts of European political discourse were drawn from aristocratic and religious discourses. God was a political force, ancient laws defined rights to territory, and blood relations conveyed political authority.⁶ The reason of state was equated with the glory of the monarch and the dynastic house. Discourses in the sixteenth century also lacked a wide range of basic assumptions, concepts, and practices that now structure the landscape of international politics. States had no institutionalized procedures for using reason or knowledge to enhance power or standing. There was no imperative to govern domestic social and economic problems. Not only was there no idea of “the economy” as an entity distinct from “society,” there was no discourse that divided society into a series of objects that could be understood and manipulated by the government. More fundamentally, sixteenth-century European states had no understanding or vision of progress. Indeed, they were more likely to understand time in cyclical rather than in linear terms.

These stark differences raise a question: how and why were the purposes that underlie international orders transformed between the sixteenth and the twentieth centuries? We can think of state purposes

⁴ On the emergence of governmentality from balance of power discourse, see Foucault 2007, 67–79; McMillan 2010.

⁵ Collins 2000; Maier 1987, 1989; Mitchell 2002, 2014.

⁶ On the broader discursive shifts in European thought, see Cassirer 1963; Kuhn 1957; Reiss 1982; Tuck 1993; Skinner 1978. On the change in international politics, see Reus-Smit 1999; Philpott 2001; Bukovansky 2002; Nexon 2009.

broadly as the ends to which state power is expected to be used.⁷ State purposes are key elements of international orders because they shape and legitimate the practices and rules that organize politics among states.⁸ Purposes link the shared normative backdrop of politics to the goals and actions of states. Thus, we can see purposes when policy-makers draw on that normative backdrop to justify their actions.⁹

Despite the importance of state purposes to international orders, existing International Relations (IR) theories are ill-equipped to explain how and why they change. First, many scholars represent international history as a timeless struggle for wealth and power, so they do not recognize or explain variation in state goals.¹⁰ However, as we shall see, there are many different ways to conceptualize and measure wealth and power. Historically shifting discourses and practices steer the pursuit of wealth and power in different directions over time.¹¹ Second, existing theories of long-run international change focus on order-building moments such as postwar settlements.¹² While these are important elements of any account of international change, a theoretical focus on order-building moments risks missing the slow, cumulative changes in discourses that happen between great power wars. Some recent works have broken free from order-building moments, but they have not theorized how international discourses change over the long-run.¹³ To explain change in purposes, we need a theory that can account for both ongoing alterations in international discourses and order-building moments that consolidate and extend ongoing discursive shifts.

Moreover, even existing discursive and ideational theories cannot explain the transformations in international order between the sixteenth and twentieth centuries because they do not recognize the cosmological character of the underlying shifts. Most ideational theories of change in IR aim to explain the emergence of sovereignty or the rise of liberal

⁷ On state purpose in international politics, see Finnemore 2003; Reus-Smit 1999; Ruggie 1982. My definition is closer to Finnemore and Ruggie's conceptions than Reus-Smit's because Reus-Smit focuses on the *moral* purpose of states, which I see as a specific type of the more general class of state purposes.

⁸ Buzan 2004; Phillips 2011; Reus-Smit 1999.

⁹ Finnemore 2003, 15.

¹⁰ E.g., Monteiro 2014, 33–34. See also, Waltz 1979; Gilpin 1981; Mearsheimer 2001; Bueno de Mesquita *et al.* 2003.

¹¹ This variation has important distributional consequences. For example, the rise of economic growth privileges economic representations and policies that ignore inequality and environmental degradation. See Daly 1996; Homer-Dixon 2006; Kallis 2017; Purdey 2010; Sen 1999.

¹² Gilpin 1981; Osiander 1994; Reus-Smit 1999; Ikenberry 2001.

¹³ Nexon 2009; Buzan and Lawson 2015.

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international order in the nineteenth and twentieth centuries.¹⁴ In doing so, they argue that changes in identity, legal thought, liberal norms, economic ideas, and humanitarian sympathies shaped new international purposes. However, these factors cannot explain the radical, thoroughgoing character of the changes that took place between the sixteenth and twentieth centuries. Only a change in the foundational concepts and categories of political discourses could introduce and legitimate the notions of rational control and human progress that had been so foreign to sixteenth-century political life. These changes in political discourse drew on what I call cosmological shifts in the image of the universe and the role of humanity in the cosmos. Once the cosmological character of the transformations is revealed it is clear that the rise of scientific ideas played a central role in the discursive changes that constituted modern international politics. In short, I argue that cosmological shifts originating in the European scientific tradition made possible and desirable the transformations of state purpose between the sixteenth and the twentieth centuries.¹⁵ In other words, in the absence of scientific ideas, the international pursuit of power and wealth would look very different than it does today.

Rather than seeking to demonstrate every aspect of this transformation, in this book I present three chronologically ordered cases that explain how and why state purposes were reoriented from God and glory to economic growth. First, the emergence of balance of power orders in Europe between 1550 and 1815 reveals how cosmological ideas from the new sciences entered political discourses, displacing and reconfiguring religious-dynastic ideas. Second, changes in British colonial policy from 1850 through 1945 show how the concept of improvement, first institutionalized at Vienna, was transformed into the goal of economic development. Third, the role of the World Bank in the post-Second World War order shows how neoclassical economists created and naturalized the concept of economic growth. Taken together, these cases outline the macro-level transformation of state purposes. But focusing on three cases also provides an opportunity to closely examine the concrete mechanisms and processes that produce macrohistorical change.

¹⁴ For example, Reus-Smit 1999, 124–128; Bukovansky 2002, 73, 88–91; Buzan and Lawson 2015, 6–9. See also, Barkin and Cronin 1994; Barnett 1997; Barnett 2011; Bowden 2009; Crawford 2002; Finnemore 2003; Hall 1999; Legro 2005; Philpott 2001; Price 1997.

¹⁵ On the logic of conditions of possibility arguments, see Finnemore 2003, 14–15. I add the term “desirable” here to denote the fact that scientific cosmology did not just make new ideas possible, but made some ideas about purpose more appealing than others. That does not mean that scientific cosmology is a sufficient condition of change in purpose, but it does contribute causal effect beyond establishing a necessary condition.

Each case traces the effects of a cosmological shift that introduced new ideas about what exists, what counts as true knowledge, the nature of time, and the place of humanity in the universe. As such, these cosmological shifts provided the opportunity for individuals and groups to challenge existing ideas about state goals and articulate new purposes. First, early modern natural philosophy from Copernicus to Newton introduced new ideas about motion and matter in a law-governed universe. Second, geological and biological thinkers culminating with Darwin altered understandings of time, development, and human progress. Third, the success of atomic physics and engineering during the Second World War inspired social scientists to model the world as a series of quantitatively defined objects and cybernetic systems. The accompanying rise of economic knowledge disseminated a narrative of scientific and technological progress that bolstered and naturalized the idea of economic growth. As these new cosmological ideas were institutionalized in states, international organizations, and other associations, they slowly transformed the discourses of state purpose embedded in international order.

Explaining Change in International Order

International orders are stable patterns of behaviour and relations among states and other international associations.¹⁶ Although there are empirical differences in the operationalization of the concept, the core idea is that international orders are historical periods characterized by distinct combinations of political, military, and economic practices. For example, the nineteenth-century Concert of Europe is considered a coherent order in which new communicative practices and multilateral institutions underwrote a long peace amongst the European powers.¹⁷ Why do the rules and practices that underlie international orders change over time?

In this section, I argue that previous efforts to explain change in international orders suffer from three weaknesses. First, leading theorists of international order do not provide an account of the mechanisms and processes of ideational change.¹⁸ Second, while there is now a growing

¹⁶ Bull 1977, 7–8; Wendt 1999, 251; Reus-Smit 1999, 13; Finnemore 2003, 85. This definition, although widely employed, is not uncontroversial. Some scholars define order not as patterns of behaviour, but as the basic rules or governing arrangements amongst a group of states (Ikenberry 2001, 23; Phillips 2011, 5). See Schweller (2001) on why this definition is preferred to defining order in terms of governing arrangements. On my view, governing arrangements underlie and shape the patterns of behaviour that constitute order.

¹⁷ Ikenberry 2001; Finnemore 2003; Mitzen 2013; Haldén 2013.

¹⁸ Branch 2013; Buzan 2004; Gilpin 1981; Ikenberry 2001; Phillips 2011; Reus-Smit 1999.

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IR literature on the micro- and meso-level mechanisms of change, these have not been integrated into a multilevel theory that can explain macro-historical transformations.¹⁹ Finally, as I pointed out above, neither macro nor lower-level theories can explain why the purposes underlying international orders change because they focus on the rise of liberalism and do not go deeply enough into discourses to see the cosmological origins of new ideas. While other theorists do theorize cosmological elements, they do not incorporate these insights into a theory of change. In short, theorists who argue that ideas are central to change do not theorize cosmology and theorists who recognize the importance of cosmology do not theorize change.

Mechanisms and Processes of Change

First, existing theories of change do not actually provide an account of how ideas spread throughout and become embedded in international orders. For example, theorists from each of the realist, liberal, constructivist, and English School traditions theorize change in international order as a series of order-building moments in which the great powers alter governance arrangements after great power war. Some of these accounts do not take ideas or change in purposes seriously. For example, in Gilpin's account of international change, the primacy of security goals stays constant throughout history.²⁰ Ideas matter in Gilpin's theory only as elements of governance arrangements and prestige.²¹ Postwar settlements redefine the rules governing the system and reorder hierarchies of prestige, but the ends and goals of states remain constant. His model neither recognizes nor explains change in state purposes. Ikenberry expands the role for ideas by taking seriously the beliefs and perceptions of leaders, but he adopts Gilpin's model of change and ignores where the ideas that structure international institutions come from.²²

Constructivist and English School approaches are best equipped to explain change in purposes, but theorists in this tradition have not theorized the mechanisms and processes by which ideas come to be institutionalized in international orders.²³ Buzan and Reus-Smit both argue

¹⁹ Adler and Pouliot 2011; Barnett and Finnemore 2004; Bueger and Gadinger 2015; Finnemore 2003; Goddard 2009; Guzzini 2013; Hopf 2010; Pouliot 2009. Finnemore and Sikkink (1998) is an important exception, but their macro-level account is quite schematic.

²⁰ Gilpin 1981, 6–8, 19, 23–24.

²¹ Gilpin 1981, 30–35, 203.

²² Ikenberry 2001.

²³ Mahoney and Thelen (2010, 5–7) have levelled this criticism at meso-level discursive theories as well.

that international orders are constituted and supported by a structure of governing arrangements and constitutional norms.²⁴ As Wendt and Duvall put it, a “hierarchy” of institutions shapes the patterns of activity that comprise international order.²⁵ The structure is hierarchical because there are constitutive relations between the various institutions. Sovereignty is “deeper” than other institutions because it makes possible or creates the conditions of existence for higher-level institutions.²⁶ For example, sovereignty is constitutive of an international trading regime premised upon control of the flow of goods across sovereign borders. In Buzan’s schema, primary institutions underlie and constitute secondary institutions.²⁷ In Reus-Smit’s account, fundamental institutions define the rules that shape state behaviour.²⁸ For both Buzan and Reus-Smit the institutional basis of international order in turn rests on values.²⁹ For example, Reus-Smit argues that fundamental institutions emerge from constitutional structures that define the “moral purpose” of political organizations and the norms of procedural justice. Reus-Smit argues that as the moral purpose of the state changes, there is upward pressure for change in the fundamental institutions of international order.

However, despite the fact that Reus-Smit and Buzan take ideas and the possibility of change seriously, they do not theorize how new ideas emerge or come to be embedded in international order. Reus-Smit argues that institutions are created via a process of communicative action in which states debate “within the context of preexisting values that define legitimate agency and action.”³⁰ However, Reus-Smit does not tell us where or when these debates happen, nor does he explain where the pre-existing values come from. The result is a static model of international order that can describe how international orders are different from one another but cannot explain change from one international order to another.

Phillips has recently built on Reus-Smit’s account, arguing that international orders shift when the social imaginaries that support them break down.³¹ For Phillips, imaginaries include “our most basic and

²⁴ In this way, they reject the largely materialist accounts of realists like Gilpin (1981) who concede only a residual role for ideas in shaping the behaviour of states. For a synthesis, from the constructivist side, see Phillips 2011.

²⁵ Wendt and Duvall 1989, 67. See also, Ruggie 1983.

²⁶ Wendt and Duvall 1989, 64. This is similar to Buzan’s (2004) distinction between primary and secondary institutions, which is discussed below.

²⁷ Buzan 2004. For a review of other work in this vein, see Wilson 2012.

²⁸ Reus-Smit 1999, 14.

²⁹ Buzan 2004, 181; Reus-Smit 1999, 15.

³⁰ Reus-Smit 1999, 27.

³¹ Phillips 2011, 43–44. For an important precursor to this argument, see Legro 2005, 29–35.

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mostly unarticulated assumptions about social reality, extending even to those that condition our experience of categories as allegedly basic as time, space, language and embodiment.³² This theorization of social imaginaries helps explain where values and purposes come from and the conditions under which international orders change. My account of cosmological change builds on these insights. Yet Phillips does not theorize the processes and mechanisms of discursive or ideational change.³³ So he does not demonstrate how the structures underlying international order are actually reconfigured. Without a more fine-grained account of how international discourses are reproduced and transformed, we cannot explain why some ideas become dominant rather than others.

Linking Micro, Meso, and Macro

Second, existing accounts of change do not provide an integrated, multilevel theory that shows how and why ideas come to be embedded in international orders. To explain international change we need to combine three elements: a micro-level account of how ideas are formed in the everyday life of social action; a meso-level explanation for why some ideas rather than others take hold in the organizations or associations that carry international order; and a macro-level theory of how the distribution of ideas in the international system shifts. The problem is that existing approaches leave out one or the other of these elements. On one hand, macro-level theories of change focus on snapshots of order-building that leave out micro- and meso-level drivers. However, change in international politics begins in the everyday life of groups and organizations including states, international organizations (IOs), non-governmental organizations (NGOs), firms, epistemic communities, and so on. To see the mechanisms and processes of change, we have to descend from the macrohistorical level to the meso-level of concrete organizations. After all, it is here that micro- and macro-level phenomena meet and are converted into one another.³⁴

On the other hand, existing micro- and meso-level approaches leave out an account of what the macro-level is and how it might change. The recent discursive, practice, and relational turns in IR theory have generated exciting insights into the mechanisms and processes of change within groups. But it is not clear how these might translate into a theory

³² Phillips 2011, 24.

³³ The same critique could be applied to many theories that bracket continuous processes of ideational change and so rely on exogenous changes in ideas during critical junctures. See, e.g., Gilpin 1981; Ikenberry 2001.

³⁴ Katznelson 1997, 84, 102; Nexon 2009, 61–63. See also Tilly 1984.

of macrohistorical change.³⁵ For example, Finnemore offers a taxonomy of micro- and meso-level mechanisms to explain change in the purposes of international order.³⁶ These mechanisms include persuasion, affect, social influence, coercion, legal rationalization, professional capture, social movement pressure, and so on. Finnemore rightly points out that in order for social purpose to change, “widely shared social structures must change.”³⁷ But an explanation for change in social structure requires a specification of what that social structure looks like and how its constituent elements might be altered. In this sense, Finnemore’s account of change at the collective level is incomplete because we need both a set of mechanisms and an account of what exactly is being changed and how.

Nexon’s relational theory of international structure is an important exception here. Nexon decomposes international structure into a set of interlinked networks such that change at the meso-level is a macro-level change. This is an essential insight that I build upon in the next chapter. However, Nexon downplays the role of structural elements like anarchy or systemic norms.³⁸ While he is correct that IR theorists should be careful about reifying structural properties, we must retain some way to talk about relatively stable practices and discourses if we want to build a theory of change.³⁹ After all, change in international order is meaningful and important precisely because we can distinguish relatively stable patterns in international life. Once ideas and practices become embedded in the core sites of international order such as multilateral treaties, postwar settlements, and powerful IOs they are reliably reproduced in a way that makes them structural forces.

However, the solution is not, as theorists of international order have often done, to focus only on order-building moments and leave the rest of history in stasis. Instead, we need a theory that combines the dynamism of recent micro- and meso-level theory with an account of why some ideas become stable elements of the landscape of international politics. But as Nexon argues, this must be done in a way that carefully links the micro-, meso-, and macro-levels of international life.⁴⁰ Following Nexon

³⁵ Adler and Pouliot 2011; Barnett and Finnemore 2004; Bueger and Gadinger 2015; Finnemore 2003; Finnemore and Sikkink 1998; Goddard 2009; Guillaume 2009; Guzzini 2013; Hopf 2010; Jackson 2006a; Kessler and Guillaume 2015; Nexon 2009; Pouliot 2009.

³⁶ Finnemore 2003, 146–161. Finnemore stops short of saying that purposes underlie international order in the same way that Buzan and Reus-Smit do.

³⁷ Finnemore 2003, 146.

³⁸ Nexon 2009, 48–60.

³⁹ See Giddens (1984, 16–18) for a defence of this line of argument.

⁴⁰ Nexon 2009, 61–63.

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on this point allows us to produce a more fragmented and dynamic conception of international ideational structures.

The Cosmological Basis of State Purposes

Finally, existing approaches cannot explain the transformation in international order over the last five centuries because they neither see nor specify the deepest, cosmological levels of international discourses. I pointed out above that ideational IR theorists argue that change is driven by changes in norms, beliefs, and emotional dispositions. For example, Reus-Smit argues that the difference between pre-modern and modern international politics can be explained by the emergence of a new moral purpose of the state. Whereas the pre-modern order was premised on the divine right of kings, the modern era rests on the liberal norm of popular sovereignty and the concomitant purpose of advancing individual interests.⁴¹ Empirically, this begs the question of how states came to have the idea that they could intervene in the lives of individuals in the first place. In the sixteenth century, there was no sense that the state was responsible for or could even shape individuals' fortunes. Individual welfare was considered to be a product of human nature, not social or state policy. Indeed, it was unthinkable that the state could affect the social forces that determined welfare because there was no conception of society as a set of elements that could be rationally controlled. Thus, the shift in state purposes had to be driven by a more fundamental shift in political discourse than a shift in moral norms could produce.

This book argues that cosmological shifts made possible and desirable new ways of thinking about state purpose that came to be embedded in successive international orders. This argument draws on insights from a number of theorists who have demonstrated the power of epistemic and ontological ideas. Ruggie and Walker demonstrate how geometrical and aesthetic concepts constituted the norms of sovereignty.⁴² Similarly, Bartelson's study of *mathesis* argues that a new scientific episteme constituted the conceptual basis of sovereignty and state interests.⁴³ Grovogui contends that international law remains constrained by deep epistemic structures constructed in the sixteenth century.⁴⁴ Scott demonstrates the importance of grids of legibility in state projects to remake the world.⁴⁵

⁴¹ Reus-Smit 1999.

⁴² Ruggie 1993; Walker 1993. See also, Branch 2013.

⁴³ Bartelson 1995.

⁴⁴ Grovogui 1996, 43–53.

⁴⁵ Scott 1998, 39.