

I. State, Regulation and Administration

Why do States Keep Secrets?¹

Thomas Wischmeyer

A. Introduction

The idea of the organizers to start this conference on digital law with a keynote on state secrecy – a decidedly pre-digital topic – resonated with me, because the discourse on digital law oftentimes suffers from a lack of history and context. This is not particularly surprising given that the object of our studies, digital tech, “moves fast and breaks things.” And legislators try to keep up and fix things with a tsunami of new regulations covering almost all parts of the digital society. For legal academia, this poses a huge intellectual challenge: It has become so hard to even keep track of the regulatory developments that it is almost impossible to find time for contextualization. However, all big ideas that drive and structure digital law have a history. And from time to time, it may be helpful to step back and reflect on these concepts, their origins, the way they developed – and then also the way they are transformed under the conditions of a digital lifeworld. Such theoretical and historical reflections are more than a source for “back in the day” anecdotes. Instead, they protect against tendencies in contemporary research that feast on the supposed uniqueness of the digital age and its ideas. The main themes of this conference – secrecy/opacity and transparency/openness – are promising starting points for such a type of reflection.

The appropriate preface in this regard is offered by *Humphrey Appleby*, Permanent Secretary in the British TV classic “Yes, Minister” – still the best introductory course to political science and administrative law: “Open government is a contradiction in terms: you can be open or you can have government.”² This sounds irritating: Isn’t openness a value, something we should strive for, rather than a type of order or rather of dis-order

1 The presentation character of the keynote was preserved. The author would like to thank Torben Klaus for support in the preparation of the final manuscript. Parts of this paper are based on *T. Wischmeyer*, *Formen und Funktionen des exekutiven Geheimnisschutzes*, DV 2018, 393.

2 Yes, Minister, Season 1, Episode 1 “Open Government.”

as Appleby suggests? And isn't public government *per se* something that is or at least should be open, considering that the very term "public" originates with Latin *publicus/populus*, suggesting a minimum of openness towards the people? And hasn't, e.g., the German Federal Constitutional Court therefore held that all executive decision-making be "visible and understandable?"³ In other words: Is Appleby just a cynic or does he have a point?

To find out, we need to explore the complex relationship between public government and secrecy. I start with a very quick dip into constitutional history. Here, I want to show you that the concept of state secrecy is intimately connected to the very idea of modern statehood (B.). In a second step, I switch to constitutional theory and try to justify why even in a democratic constitutional state such as Germany transparency is not always a good thing. Instead, I will argue that under certain conditions there are reasons to justify state secrecy. Like *Hans Christian Andersen's* Emperor, a completely transparent state would also be a naked state and a helpless state in every respect (C.). Thirdly and finally, I look at the regulatory framework by which states try to create and enforce state secrecy (D.). This final step links my topic to many papers presented at this conference. But while in digital law we typically think about how to foster transparency through regulation, for states, the challenge is exactly the opposite: How to stop the leaks?

B. History: The common tradition of state secrecy and transparency

Many historians have observed that secrecy was a key element in forming the modern state.⁴ In the medieval system of government, secrets played an important role in legitimizing power, too, but they were still closely

3 BVerfGE 89, 155 (185); 97, 350 (369). Similarly already BVerfGE 40, 296 (327): "Parliamentary democracy is based on the trust of the people; trust without transparency, which allows to follow what is happening politically, is not possible." (Translated by the author).

4 From the very rich literature on this subject see especially *L. Hölscher*, *Öffentlichkeit und Geheimnis*, Stuttgart 1979; *M. Stolleis*, *Arcana imperii und Ratio status*, Göttingen 1980; *B. W. Wegener*, *Der geheime Staat*, Göttingen 2006; *E. Horn*, *Der geheime Krieg*, Frankfurt a. M. 2007; *E. Horn*, *Logics of Political Secrecy, Theory, Culture & Society* 2012, 103; *L. Quill*, *Secrets and Democracy*, Basingstoke 2014; *R. Voigt* (ed.), *Staatsgeheimnisse*, Wiesbaden 2017.

related to the realm of religion.⁵ Around 1500, secrecy was then secularized and became part of the idea of the modern state. In the context of the so-called *arcana imperii* (arcane politics), a veritable cult of secrecy developed, most prominently in the writings of *Niccolò Machiavelli* and *Giovanni Botero*: “Secrecy is of great importance to a prince, because it makes him similar to God, so that people are in tense anticipation of his plans because they do not know his thoughts.”⁶ With this little phrase – “similar to God” – Botero transfers the legitimizing power of the secret from the sphere of religion to the state.

Machiavelli and his fellow early modernists had recognized the eminently political dimension of government information flows – and the power that lay within designing these flows. Much later, sociology would spell this out in detail. *Max Weber* devoted many pages in his sociology of domination (*Herrschaftssoziologie*) to describe how power is distributed both within the state as well as between the state and society through the design of the informational architectures.⁷ And *Michel Foucault* recognized that there is no power relation without a corresponding field of knowledge being constituted – and that there is no knowledge that does not simultaneously presuppose and constitute power relations.⁸ But from an early modernist’s perspective, later sociological approaches only developed in theory what absolutist rulers had already figured out in practice: that “knowledge is power” (*Francis Bacon*) and that rulers needed to create an arcane realm in order to legitimize their rule and to secure it.

Similarly, when enlightenment revolutionized political thought, its theory of information flows was not revolutionary at all. To the political philosophers of the new era, knowledge was power as much as it used to be for *Botero* and his colleagues. The enlightened liberals now simply used the logic and grammar of absolutism for their own ends. When the new theorists devoted their analyses to state secrecy, it was not to praise but to denounce it. But at the same time, they recognized that if they wanted to change the design and purpose of the state, they needed to transform its informational architecture. The existing structure of information flows had to be broken up and replaced with a new structure which

5 *R. Otto*, *Das Heilige*, München 1917 (on the *mysterium tremendum et fascinans*); *Horn*, *Logics of Political Secrecy* (n. 4), p. 103 et seqq.

6 *G. Botero*, *Della ragion di stato libri dieci*, Venice 1606, p. 77.

7 *M. Weber*, *Wirtschaft und Gesellschaft*, Tübingen 1980, p. 548; *M. Weber*, *Gesammelte politische Schriften*, Tübingen 1988, p. 351 et seqq.

8 Cf. for his take on the *arcana imperii*: *M. Foucault*, *Geschichte der Gouvernementalität I*, Frankfurt a. M. 2004, p. 396 et seqq.

they called “open” or “public.” It was during the same eighteenth century that the concept of “public opinion,” rarely used until then, became a central concept of the political discourse⁹ and contributed to the process that has famously been described as the “structural transformation of the public sphere.” But although the new approach to secrecy and information appeared as a counter-concept to despotism, criticizing its arcane politics and non-publicity of the legal sphere,¹⁰ liberalism was and is still indebted to the insight: Knowledge is power, and the way knowledge is distributed matters politically.

Against this backdrop, *Hannah Arendt’s* famous “Real power begins where secrecy begins” – a quote missing in hardly any paper on secrecy – appears incomplete.¹¹ Rather, as the enlightenment philosophers recognized, the call for transparency is also always a demand for real power and its redistribution. Transparency is thus neither a neutral category nor the natural way information is distributed. It is instead a distinct form of organizing information and thus of designing institutions, which in itself needs to be justified. In other words, *Humphrey Appleby* has a point.

To sum this up: Historically, secrecy and transparency are not at all fundamentally different ideas. Rather, both concepts were used to structure the flow of information and communication within and between organizations. Against this backdrop, rules on state secrecy can be understood as attempts to stabilize two types of boundaries: those between the state and society on the one hand and those between institutions within the state on the other.¹²

9 Cf. *Hölscher*, Öffentlichkeit und Geheimnis (n. 4); *H. Hofmann*, Öffentlich/privat, in: J. Ritter/K. Gründer (eds.), *Historisches Wörterbuch der Philosophie*, Vol. 6, Darmstadt 1984, col. 1131; *L. Hölscher*, Öffentlichkeit, in: J. Ritter/K. Gründer (eds.), *Historisches Wörterbuch der Philosophie*, Vol. 6, Darmstadt 1984, col. 1134 (1135, 1136).

10 Cf. *H.-J. Lüsebrink*, in: A. Assmann/J. Assmann (eds.), *Schleier und Schwelle*, Vol. 1, München 1997, p. 111 (111).

11 *H. Arendt*, *The Burden of Our Time*, London 1951, p. 386, as cited in *Horn*, *Logics of Political Secrecy* (n. 4), p. 103.

12 Cf. the characterization of rules on secrecy as “ultimate sociological form for the regulation of the flow and distribution of information” by *L. E. Hazelrigg*, *A Reexamination of Simmel’s “The Secret and the Secret Society”*: Nine Propositions, *Social Forces* 1969, 323 (324).

C. Theory: Justifying state secrets in constitutional democracies

As much as state secrecy is not a prerogative of autocracies but instead an inevitable feature of all forms of organized statehood, this does not mean that constitutional democracies always take a rational approach towards state secrecy. Rather, even in democracies, state secrecy is abused – think of the Pentagon Papers, WikiLeaks, the NSA and the like. But not only these highly prominent cases demonstrate that many government officials are probably still a bit too fond of the idea of *arcana imperii*. If you look at the case law of German administrative courts, you will find many cases in which it is difficult to understand why information is (still) kept secret. One example is the case of a journalist who requested access to specific archival documents on the Adolf Eichmann case which was denied by the government – more than 50 years after the documents were filed.¹³ In this case, there are no plausible grounds to refuse access. Not only are the documents so old that any detrimental consequences for the national interest are extremely unlikely. But even if the documents would unveil objectionable practice of the German intelligence agencies back in the 1960s and 70s, this would not necessarily harm the institutions today. As shown by the work of the Independent Commission of Historians for Research into the History of Germany's Foreign Intelligence Service, the uncovering of Nazi continuities in the services does not negatively affect today's trust in the institutions; on the contrary, it is viewed positively as evidence of appropriate dealing with the past.¹⁴ Nevertheless, in a similar case from 2014, the government denied Members of Parliament access to information about the right-wing terrorist attack on the Oktoberfest, which took place in 1980 (!) – and the courts accepted it.¹⁵

The fact that even democracies sometimes fall back on patterns of arcane politics, however, does not refute the fact that they are generally a “government of visible power” as the Italian legal philosopher *Noberto Bobbio* has called them.¹⁶ His assessment is based on the fact that democracies

13 On the restrictive handling of these norms by the intelligence services see the facts in BVerwGE 136, 345; BVerwG, order of January 10, 2012, 20 F 1/11; BVerwG, order of December 20, 2016, 20 F 10/15.

14 Several studies have emerged from the Commissions's work; see the references at http://www.uhk-bnd.de/?page_id=340 (last access: 20.09.2022). Respectively on the Federal Office for the Protection of the Constitution (BfV): C. *Goschler/M. Wala*, „Keine Neue Gestapo“, Darmstadt 2015.

15 BVerfGE 146, 1.

16 N. *Bobbio*, *Die Zukunft der Demokratie*, Berlin 1988, p. 86.

have broken with the *natural* relationship between state power and the arcane. In a democracy, secrecy shields no longer any higher truths.¹⁷ State secrets therefore need to be rationalized and justified. But under which conditions is this possible?

I. Strategic Secrecy

Secrecy creates information asymmetries – and information asymmetries enable strategic action. For private actors, this is probably the main reason for keeping information secret: to preserve a competitive edge. But from time to time, public authorities must act strategically, too. The ends to a state's strategic means, however, are always bound to its constitutional mission. Using information strategically is not only common practice in foreign policy vis-à-vis other states, but also within the national borders, where the state acts as an “organized unit for taking and enforcing decisions”,¹⁸ which is dependent on informational advantages over its legal subjects – in the fight against crime, the enforcement of tax and competition law, and financial market regulation, to give just a few examples.

However, before we can declare a specific strategic secret to be *legitimate*, we always need to balance the state's interest in secrecy with the conflicting interests in making the information public. And even if the latter turns out to be very weak, strategic secrecy is never self-serving: As soon as the state's need for strategic advantage vanishes, the information must be made accessible. Thus, the value of strategic secrecy decreases over time, while the burden of justification increases.

II. Institutional Secrecy

Social psychology tells us that persons who share secrets are more closely connected by this very fact. In this sense (shared) secrets generate and deepen communicative relationships.¹⁹ Institutional secrecy differs from strategic-operational secrecy protection in that it is not related to a specific

17 Assmann/Assmann, Schleier und Schwelle (n. 10), p. 7 (9).

18 H. Heller, Staatslehre, Leiden 1934, p. 228 et seqq.

19 Bohn, in: Schleier und Schwelle (n. 10), p. 41 (48); J. Westerbarkey, Das Geheimnis, 1991, p. 115 (141 et seqq.) with further references.

temporal situation. In a constitutional democracy, institutional secrets can be legitimate in three constellations.

- a) Secrecy enables organizational units to form a communicative identity and thereby stabilizes organizational differentiations: “The open word is only spoken behind closed doors.”²⁰ Conversely, transparency obligations relativize the informational autonomy of an organization and impair its social cohesion, which is also based on shared secrets. Where strong social cohesion already exists, new transparency obligations can thus have the undesirable side-effect of increasing decentralization. They can also lead to decision-making processes being shifted from formal to informal fora.²¹ Institutional secrecy can thus safeguard institutional differentiation and formal organizational structures and protect the separation of powers. This sociological observation is reflected in the constitutional doctrine of “*Kernbereichsschutz*” – the idea of each state power having a protected institutional “core” of activities to which other powers do not have any right to access.²²
- b) In institutions which decide by majority, the secrecy of deliberations can help to facilitate decision-making. This is because majority decisions are regularly based on compromises, which require a tactical approach, both within the group and in dealings with the public. It is easier to find common ground with your adversary if you do not have to publicly justify every position that you might adopt for mere tactical reasons. Conversely, transparency increases the political costs for those involved in negotiations and thus makes compromises more challenging. Even parliamentary work, guided by the ideal of representation, is not organized in a completely transparent manner for precisely these reasons.²³
- c) If we consider that too much transparency corrodes social cohesion within an institution and erodes public trust in it, it seems plausible

20 M. Jestaedt, Das Geheimnis im Staat der Öffentlichkeit, AöR 2001, 204 (230).

21 In detail on such costs of transparency H. Tsoukas, The tyranny of light: The temptations and the paradoxes of the information society, Futures 1997, 827; Jestaedt, Geheimnis (n. 20), 233; J. Costas/C. Grey, Secrecy at Work, Stanford 2016, p. 52 with further references; M. Fenster, The Transparency Fix. Secrets, Leaks, and Uncontrollable Government Information, Stanford 2017.

22 Seminal BVerfGE 67, 100 (139); on the development of the respective jurisdiction P. Cancik, Der „Kernbereich exekutiver Eigenverantwortung“ – zur Relativität eines suggestiven Topos, ZParl 2014, 885 (892 et seqq.).

23 See only BVerfGE 120, 56 (74); 125, 104 (122 et seqq.); 140, 115 (150 et seq., 156)

to assume that shielding an institution from the strict scrutiny of the public eye both strengthens the acceptance of decisions of this institution and generates systemic trust. We should, however, be very careful with this argument, because systemic trust presupposes a high degree of openness in the first place.²⁴ Therefore, in a democracy institutional secrecy must never be used to obscure potentially irrational decision-making practices. Secrecy can be permitted in special cases but must be accompanied by compensatory transparency requirements at the same time. This is especially the case in situations where there is a high degree of discretion for a decision, but the result of the decision claims to be highly binding as it is the case with judicial deliberations, which are to be kept secret under all circumstances.²⁵ Such a rule is justified only in the context of a procedural law that is otherwise fully committed to the idea of transparency.²⁶

It is important to highlight that institutional secrecy can only be justified where the positive effects described here actually materialize. The trust argument in particular is based on empirical assumptions; if it cannot be proven that informational secrecy increases trust in an institution, transparency takes precedence. In any case, as with strategic secrecy, the consequences of secrecy depend on an appropriate design of access rights and barriers.

III. *Fiduciary Secrecy*

In social interactions, individuals regularly exchange information that they do not want to disclose to third parties. As we have seen, such shared secrets enable deeper cooperation, facilitate coordinated strategic behavior, and stabilize trust between the actors. Regardless of potential strategic and institutional effects, however, secrecy may also be justified if and to the extent that the *specific relationship* on which the information sharing is

24 Trust arises “between knowledge and ignorance,” as German sociologist Georg Simmel has put it. Simmel, *Soziologie, Gesamtausgabe* Vol. 11, Frankfurt a. M. 2016, p. 393.

25 Cf. sec. 43 Deutsches Richtergesetz (German Judiciary Act): “Judges are to preserve secrecy regarding the course of deliberations and voting even after their service has ended.”

26 Cf. sec. 169 (1) Gerichtsverfassungsgesetz (Court Constitution Act): “Hearings before the adjudicating court, including the pronouncement of judgments and rulings, shall be public.”

based enjoys legal protection. The legal system recognizes numerous such fiduciary relationships among private individuals and protects them, *inter alia*, by imposing penalties for breaches of secrecy.²⁷

The state, too, can be the recipient of such fiduciary secrets. This is the case when, e.g., a person submits a request to a public authority and communicates facts that, in the applicant's view, require secrecy. In addition, government agencies have the power to – openly or secretly – collect personal information which then must be protected from disclosure to third parties. Here, too, the state becomes a trustee of secrets and is thus responsible for protecting the integrity and confidentiality of the information.

As all other types of secrets, fiduciary secrets guarded by the state need to be balanced with conflicting transparency interests. To conduct a proper proportionality test, courts must not only analyze the normative weight of the competing legal interests. They also need to be aware of the different ways secrets can be protected. This brings me to the final section of my paper: How do states enforce state secrecy?

D. Practice: Implementing State Secrecy

It is once again Sir Humphrey who offers a guiding preface for the practice of state secrecy: “The Official Secrets Act is not to protect secrets, it is to protect officials.”²⁸ And once again, there is more to this quip than meets the eye. Law cannot change technology, let alone the world, and it certainly cannot keep information secret. What law can do, however, is to attribute responsibility to someone for something, or to release someone from responsibility. In this sense, legal rules concerned with state secrecy assign responsibilities to government officials on how to organize information flows. They put transparency and secrecy as complementary modes of the governmental information regime into practice. (Not only) German law has a complex regulatory regime for this purpose, which includes procedural, organizational, and technical norms.

27 Sec. 203 Strafgesetzbuch (German Criminal Code) for example punishes the violation of certain private secrets.

28 Yes, Prime Minister, Season 2, Episode 2 “Official Secrets.”

I. Defining state secrets

Legal cornerstone of administrative secrecy in Germany is the *Sicherheitsüberprüfungsgesetz* (SÜG – Security Clearance Act).²⁹ The SÜG is a risk-based regulation which contains precise instructions on how state secrets need to be handled. Paradoxically, the main effect of the SÜG is that it safeguards transparency: By defining under which conditions which types of information can be classified as what kind of secret (cf. sec. 4 SÜG), the law prevents the establishment of informational “black holes” within the administration that are fully exempt from any kind of control. Instead of giving a *carte blanche* to handlers of certain documents, the SÜG puts a justificatory burden on every act of classifying government information. Thus, the legal formalization of what constitutes state secrecy contributes to its limitation – not only by defining what a secret *is*, but even more so by declaring what *is not*.

II. Defining role-based criteria for information access

A secret is not a secret, if nobody gets to know about it. Secrets are not simply non-communication. Rather, as we have seen, secrets are a form of privileged communication that specifically excludes third parties. Accordingly, the laws on state secrecy do not simply ban the disclosure of information. Rather, they regulate – explicitly or implicitly – who is part of the communicative relationship constituting the secret. Legal academia has so far paid comparatively little attention to this institutional dimension of secrecy. This may be partly because the discourse on open government is focused on granting public access to government information. However, even where the general public remains excluded from a state secret, legitimacy and accountability concerns can at least partly be addressed by granting privileged third parties – independent authorities, external experts, parliamentary subcommittees, judges, etc. – access. Such

29 Further details are regulated by the “Allgemeine Verwaltungsvorschrift des Bundesministerium des Innern zum materiellen und organisatorischen Schutz von Verschlusssachen” (“General Administrative Regulation of the Federal Ministry of the Interior on the Material and Organizational Protection of Classified Information”). Corresponding regulations exist for other authorities. For the EU perspective, see D. Curtin, *Overseeing Secrets in the EU: A Democratic Perspective*, JCMS 2014, 684.

differentiated access rights, which are well-known from intelligence law, can have significant control effects.

In addition, increasing the number of participants in a state secret also offers indirect protection against the dangers of over-classification, because it increases the probability that relevant information will indirectly reach the public – be it by accident, negligence, or deliberate disclosure. The major “leaks” of the past few years show that in complex bureaucracies information flows can never be controlled completely.³⁰ Such whistle-blowing might (still) be illegal, yet it is a helpful corrective against pathologies of state secrecy.³¹

III. Defining the substantive scope of information access

Information requiring secrecy can often be disclosed to the public in a way that does not undermine the purposes of secrecy protection. Think of statistical information on wire-tapping, that does not allow conclusions to be drawn about individual cases but enables an overall assessment of government activities and thus helps to create transparency. Tweaking the scope of transparency obligations in similar ways helps to protect classified information, but at the same time ensures that supervisory bodies – e.g. parliaments, courts, committees – know that there is something in which they might have an information interest and can exercise their specific control rights.

Various options for structuring the protection of secrets in such a transparency-sensitive manner exist. At the most abstract level, the publication of laws, administrative regulations and guidelines already contributes to transparency and allows the public to get a more precise picture of the information that the state is allowed to withhold from them. Similarly, on a purely individual level, the need to formally deny an information access request can be transparency-enhancing, if the executive needs to justify its decision with a substantive legal statement (see sec. 39 of the German Administrative Procedures Act).

30 M. L. Sifry, *WikiLeaks and the Age of Transparency*, Berkeley 2011.

31 From an administrative science perspective, whistleblowing is an example of “useful illegality” in the sense of N. Lubmann, *Funktionen und Folgen formaler Organisation*, Berlin 1999, p. 304 et seqq. See, however, the Directive (EU) 2019/1937 of the European Parliament and of the Council of 23 October 2019 on the protection of persons who report breaches of Union law, *Official Journal of the European Union* 2019, 17–56.

IV. Defining temporal criteria for information access

From a functional point of view, democratic secrets are always “temporal,” as we have seen. Unlimited restrictions on access to information cannot be justified. But again, the legal system can provide for very different temporal access regimes. Rigid time limits or flexible models can be chosen, combined with fixed expiry dates where appropriate.

The periods of protection required differ depending on the type of secrets. Strategic secrets lose their need for protection when their strategic advantage is gone. Institutional secrets might require a longer period of protection to prevent protected interests, such as the impartiality of judicial decision-making or the possibility of compromise. Similar reasoning applies to the handling of fiduciary secrets. Here too, however, the interests of those affected by the disclosure of information to third parties lose weight over time.³² Given the general precedence of transparency and publicity – “delaying access is denying access” –, it appears sensible to keep mandatory protection periods short, and to provide for a possibilities of extension, if needed.

In the end, a combination of different access restrictions will offer the most comprehensive approach, as time limits can be combined with substantive and personal restrictions. This makes it possible to, e.g., give a small group such as a parliamentary subcommittee comprehensive and immediate access, while the public is only informed in general or statistical terms, until the full set of facts can safely be openly disclosed after a fixed time limit has expired.

E. Outlook

Since *Machiavelli* and his colleagues left their footprint in political theory, the democratic state has sobered up from the *arcana imperii* and the protection of classified information no longer provokes goosebumps. Instead of shielding power, today’s rules on secrecy need to be carefully designed and must be justified within a functionally differentiated constitutional system.

32 The limits of post-mortem protection of fundamental rights (BVerfGE 30, 173 (196)) have also influenced the most recent reform of the Bundesarchivgesetz (German Federal Archives Act – BArchG), as shown by the shortened period of protection from 30 to 10 years after the death of the person concerned compared with the old version of the law. Cf. also the exception in Section 11 (4) BArchG.

But what sounds like a loss of power or a missing source of authority for the state has instead become a new toolkit in its informational relations. Not having secrets for their own sake ties the means back to their ends: to the welfare of a society as well as its individual members.

This development has taken centuries to unfold, but it can offer orientation for present regulatory initiatives, as well. In view of warnings against digital companies creating a modern arcane realm of technology,³³ knowledge about the historic bond of secrecy and transparency can immunize against a one-sided regulatory approach focusing on transparency only. Hence, the question might not only be how the new actors can be made more transparent – but also what the intended effect of such transparency is. In this regard, as we have seen, *Sir Humphrey's* criticism against open government contains a plausible core that could be paraphrased to suit the current discussions on digital regulation: Ripping off all covers does not make you transparent, but naked. And such a state of affairs suits neither governments nor (reputable) businesses.

33 T. Barczak, *Algorithmus als Arkanum*, DÖV 2020, 997 (1000 et seq.).

