

# Review as a Documented Cognitive Process: Toward a Reconsideration of Double-Blind Peer Review

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## Abstract

The article presents a preliminary analytical reflection on the structural limitations of conventional double-blind peer review within contemporary scientific communication. The authors proceed from the assumption that peer review is gradually losing the characteristics of an observable cognitive and analytical process and increasingly functions as a relatively closed administrative mechanism of scholarly filtering. Particular attention is devoted to the partial nature of anonymity, the disappearance of documented scholarly discussion, the conservative role of institutionalized normal science, and the difficulties associated with the evaluation of interdisciplinary and analytically unstable research domains. As an alternative orientation, the article proposes understanding peer review as a documented collegial cognitive process based on analytical discussion, preservation of scholarly disagreement, participation of the author in the refinement process, and maintenance of an observable documentary trace of intellectual interaction. The proposed approach is considered not as a finalized model, but as a preliminary attempt to explore possible forms of scientific communication within the framework of the journal Pollution and Diseases, particularly in relation to analytically difficult real-world problems requiring sustained interdisciplinary discussion.

*Keywords:* peer review, double-blind review, scholarly communication, cognitive process, interdisciplinary research, analytical uncertainty, documented discussion, epistemic transparency, normal science, editorial process, real-world problems.

## Key Points

1. Conventional double-blind peer review increasingly functions as a relatively closed administrative mechanism of manuscript filtering in which the

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documented analytical history of scholarly evaluation largely disappears from the scientific archive.

2. The formal anonymity of double-blind review does not necessarily guarantee objectivity, since editorial structures retain substantial influence over reviewer selection, while authorship may often be indirectly identifiable through thematic specialization, citation patterns, terminology, and methodological orientation.
3. Contemporary peer review systems are structurally connected with the stabilizing logic of institutionalized normal science, which tends to minimize conceptual risk, preserve disciplinary continuity, and marginalize analytically unstable or interdisciplinary research domains.
4. The proposed approach considers peer review not primarily as hierarchical expert evaluation, but as a documented collegial cognitive process involving analytical discussion, preservation of scholarly disagreement, participation of the author in conceptual refinement, and maintenance of an observable documentary trace of intellectual interaction.
5. The article should be regarded as a preliminary exploratory reflection associated with the development of the journal *Pollution and Diseases*, where alternative forms of scholarly discussion and review architecture are being considered in relation to analytically difficult real-world problems.

## **Introduction**

An enormous number of articles and books have already been published concerning peer review and the problem of adequately evaluating scientific manuscripts submitted to academic journals and publishing houses. Only a few examples are listed here (1–25). For the editor-in-chief of a new scientific journal, this literature represents an important source of analytical information. Initially, an attempt was made to identify possible answers to the questions confronting the journal within the already existing scholarly literature. The time invested was not wasted. However, definitive answers to the problems under consideration were not found there.

The version of peer review currently being explored within the journal *Pollution and Diseases* is based to a considerable extent on negative practical experience. This point should be stated directly. Scientific work has been conducted continuously from 1980 to the present, including experience associated with the USSR, Ukraine, the Russian Federation, the United States, Germany, Poland, the Czech Republic, South Africa, and several other countries.

The significance of such experience lies not only in familiarity with idealized descriptions of how scientific journals are supposed to function, but also in direct observation of the actual realities of scholarly communication and editorial practice. The distinction between institutional declarations and practical functioning appears especially important and is frequently underestimated.

Attention is therefore directed not only toward theoretical discussions concerning peer review, but also toward the observable functioning of scientific communities

themselves, including the concrete organization of manuscript evaluation and editorial decision-making. Many important aspects of actual peer review practice remain almost entirely undescribed within formal scientific literature.

At times, the impression emerges that a significant portion of the scholarly literature devoted to “double-blind peer review” exists in a somewhat different intellectual dimension than the practical realities of contemporary scientific publishing.

The present text should not be regarded as a finalized theory of peer review or as an attempt to propose a universal model of scientific communication. It represents a preliminary analytical reflection on the forms of scholarly discussion and evaluation that may remain possible under contemporary conditions.

The immediate context for this reflection is connected with the development of the journal *Pollution and Diseases*. The journal was not established as another platform for scientometric accumulation, academic reporting, or routine career-oriented publication activity. Numerous journals already perform such functions relatively effectively. The orientation of *Pollution and Diseases* is different.

The journal is focused on problems related to pollution, disease, environmental consequences of military activity, interdisciplinary crises, and other analytically difficult real-world processes. Within such thematic domains, the question of peer review acquires particular importance.

The present argument should not be interpreted as a polemical rejection of the existing system of scientific publishing. Nor is the purpose to criticize double-blind peer review as such. In many situations, conventional review systems continue to perform useful and stabilizing functions. However, it increasingly appears that contemporary peer review is gradually losing the characteristics of an observable cognitive process and increasingly functions as a relatively closed administrative mechanism of manuscript filtering.

One of the most significant problems in this context is not active opposition to alternative approaches, but rather the near absence of discussion concerning the problem itself. The dominant reaction is frequently silence.

Proposals concerning possible modifications of existing review architectures rarely generate sustained analytical discussion. At the same time, the procedural formalization of contemporary peer review is itself seldom treated as an independent epistemic problem. Most participants within the scientific community appear largely adapted to the existing system as something institutionally normal and historically stable. For this reason, it appears necessary at least to formulate the problem explicitly.

## RESULTS

### **The Historical Role of Double-Blind Peer Review**

Historically, double-blind peer review became one of the central mechanisms of quality control within scientific publishing. Its primary rationale is relatively clear: to

minimize subjectivity and reduce the influence of personal connections, scientific hierarchies, and institutional pressures.

Within stable disciplinary science, this model frequently proved effective. It allowed journals to maintain certain scholarly standards while preserving a degree of relative autonomy in expert evaluation. As a consequence, double-blind review gradually came to be perceived as a largely natural and almost self-evident form of scientific expertise.

At the same time, any institutional system functioning over extended historical periods tends to acquire elements of procedural formalization and structural inertia.

### **The Partial Nature of Anonymity**

One of the central arguments in favor of double-blind review concerns anonymity. The reviewer is assumed not to know the identity of the author, while the author remains unaware of the reviewer.

In practice, however, anonymity often proves only partial. Within many scientific disciplines:

- research communities remain relatively small;
- thematic specialization frequently allows probable identification of authorship;
- writing style, terminology, and citation structures become recognizable;
- methodological preferences often reveal identifiable research traditions.

Even if one assumes the existence of very large scientific communities, editorial boards nevertheless retain substantial influence over:

- reviewer selection;
- manuscript distribution;
- interpretation of reviewer comments;
- final editorial decisions.

As a result, double-blind review does not necessarily eliminate subjectivity. In many cases, it merely renders subjectivity less observable.

### **The Disappearance of Peer Review as a Cognitive Process**

A more significant problem concerns not subjectivity itself, but the gradual disappearance of peer review as an observable cognitive process. Within many contemporary review systems, the following elements frequently disappear from the scientific archive:

- conceptual objections;
- methodological disagreements;
- the analytical logic of editorial decisions;
- the history of manuscript revision;
- intellectual interaction between authors and reviewers.

What often remains visible is only the final administrative outcome:

- accepted;
- rejected.

At the same time, the actual process of scholarly clarification, critique, doubt, and analytical refinement becomes largely invisible. Under such conditions, peer review increasingly ceases to function as an observable process of scientific cognition and increasingly assumes the form of a relatively closed administrative filtering mechanism.

This problem becomes especially visible in interdisciplinary research. A narrowly specialized reviewer may correctly identify local deficiencies within a manuscript while simultaneously failing to recognize the broader analytical significance of the problem under investigation.

As a consequence, many analytically difficult real-world problems remain insufficiently investigated not because they lack significance, but because they fit poorly within stabilized disciplinary structures.

### **Double-Blind Peer Review and Super-Normal Science**

Historically, peer review evolved not only as a mechanism of quality control, but also as a mechanism for stabilizing scientific paradigms. Within this context, it becomes possible to speak about the phenomenon of super-normal science (26).

The issue should not be interpreted in conspiratorial terms or as a form of intentional censorship. The problem is structural. Scientific publishing systems gradually tend to:

- minimize conceptual risk;
- avoid analytically unstable themes;
- preserve disciplinary predictability;
- approach interdisciplinary problems cautiously;
- maintain methodological continuity.

As a consequence, certain topics become formally permissible while simultaneously remaining highly inconvenient for existing structures of scientific communication. This becomes especially visible in relation to:

- long-term environmental consequences;
- ecological effects of military activity;
- interdisciplinary crises;
- infectious processes;
- politically sensitive environmental themes.

Such topics may remain in a condition of analytical marginalization for decades.

### **Real-World Problems and the Need for Alternative Forms of Scholarly Discussion**

Within stable disciplinary science, conventional review systems may continue functioning relatively effectively. However, their limitations become substantially more

visible when analytically difficult real-world problems are involved. Such themes frequently require:

- extended analytical discussion;
- comparison of competing interpretations;
- interdisciplinary critique;
- explicit recognition of uncertainty.

Within binary “accepted/rejected” systems, such analytical processes are often poorly accommodated. For this reason, the search for alternative forms of scholarly discussion and quality control becomes increasingly important.

The issue is not the rejection of expert evaluation as such. Rather, it involves an attempt to restore peer review as an observable cognitive process. Peer Review as a Documented Cognitive Process

The proposed approach proceeds from a relatively simple premise: peer review should function not only as a mechanism of manuscript filtering, but also as a documented process of scientific cognition. Within such a framework, review begins to include:

- analytical discussion;
- documented refinement of manuscripts;
- open discussion of methodological limitations;
- preservation of the history of scholarly discussion;
- participation of the author in the clarification of argumentation.

Under such conditions, the author no longer functions merely as a passive object of evaluation. Instead, the author becomes a participant in analytical discussion.

Disagreement is not treated as a defect of the system. On the contrary, it may represent a normal form of scientific cognition. The essential issue therefore becomes not the elimination of all contradictions, but their analytical fixation and documentation.

### **Limitations of the Proposed Approach**

It should be emphasized that the proposed model should not be regarded as finalized or empirically validated. At the present stage, it represents primarily an attempt to explore what forms of scholarly discussion may remain possible under contemporary conditions.

The editorial board of Pollution and Diseases formally exists; however, sustained analytical discussion remains relatively limited. Most participants remain silent. There is little visible reaction either to critiques of conventional peer review systems or to proposals for alternative approaches. For this reason, there are no grounds for assuming that the proposed model will necessarily prove successful in practice. Complex analytical discussions may remain relatively rare. Nevertheless, the attempt itself appears necessary.

If scientific journals are to remain connected to analytically difficult real-world problems rather than functioning exclusively as mechanisms of procedural publication management, the question of review architecture will likely need to be reconsidered.

The journal *Pollution and Diseases* is oriented toward analytically difficult and often unpopular research themes that are frequently avoided within conventional structures of scientific communication. Only a few examples may be mentioned here:

- analyses of the functioning of the phthisiological expert community in the USSR and post-USSR systems. These studies demonstrate a disturbing structural characteristic of this scientific and medical community: its active cooperation with state structures in preserving the dual system of tuberculosis control (27,28);
- investigations of the long-term consequences of military activity, including both environmental effects and consequences directly associated with public health (29–31).

Within the journal, highly complex situations are frequently encountered in the evaluation of manuscripts submitted for publication. The present reflections are connected with ongoing attempts to identify analytically adequate approaches to these emerging problems.

### **Conclusions**

The problem of double-blind peer review extends far beyond questions of reviewer subjectivity or the technical organization of anonymity.

The more fundamental issue concerns the gradual disappearance of peer review as an observable cognitive and analytical process. In many contemporary systems of scientific publishing, the scholarly archive increasingly preserves only the final administrative outcome of evaluation while losing the documented structure of discussion, disagreement, conceptual refinement, and methodological clarification that historically constituted an essential part of scientific cognition.

Under such conditions, peer review progressively shifts from a process of collegial analytical interaction toward a relatively closed mechanism of procedural filtering and administrative decision-making.

This limitation becomes especially significant in relation to analytically difficult real-world problems characterized by:

- interdisciplinary uncertainty;
- conceptual instability;
- methodological ambiguity;
- politically sensitive themes;
- long-term environmental and epidemiological consequences.

Within such domains, binary “accepted/rejected” architectures frequently prove insufficient for sustained analytical discussion and gradual conceptual refinement.

The present article does not propose a finalized alternative model and should not be interpreted as a universal rejection of conventional peer review systems. In many scientific contexts, traditional review structures continue to perform important stabilizing and quality-control functions. Rather, the present text should be understood as a preliminary exploratory reflection associated with the development of the journal *Pollution and Diseases*. The journal is attempting to examine whether alternative forms of documented scholarly discussion may be possible in relation to analytically complex real-world problems that frequently remain insufficiently addressed within highly formalized disciplinary structures.

Within this orientation, peer review is considered not only as a mechanism of manuscript evaluation, but also as a documented collegial cognitive process involving:

- analytical discussion;
- preservation of scholarly disagreement;
- conceptual clarification;
- documented refinement of argumentation;
- maintenance of an observable intellectual archive.

Whether such an approach will prove sustainable or analytically productive remains an open question. However, the attempt itself appears necessary under contemporary conditions in which scientific communication increasingly risks losing the observable cognitive dimension of scholarly interaction.

### **Conflict of Interest**

The authors declare no conflict of interest.

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### **Data Availability Statement**

No new data were created or analyzed in this study.

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