letech ovlivněn obecnou kritickorealistickou náladou, zda koncepce spontánnosti poznávajícího subjektu není plodem této nálady, zda skutečnost, že původně psal o zákonech a principech jsoucna a poznání, později však téměř výhradně místo toho o kategoriích jsoucna a poznání, souvisí nějak s tímto vývojem (srovnej str. 35 a 37) atd. atp.

Pro marxistu je studium Hartmannových děl i prací o jeho díle velmi podnětné. Musí je ovšem studovat s cílem vytěžit z nich maximum pro prohloubení dialektickomaterialistických koncepcí různých otázek, i když s vědomím, že Hartmannova filosofie je nedialektická, v podstatě neorealistická, neznající skutečnou materiální praxi. Píší-li se práce o této filosofii jenom s cílem odhalit ledví buržoazního filosofa, je z nich jenom velmi malý prospěch (srovnej A. F. Zotov, Nikolaj Gartman i jego „kritičeskaja ontologija", Voprosy filosofii, 1957/4, str. 117—124).

Vcelku je možno konstatovat, že kniha Ingeborg Wirthové je prací psanou s velkým zaujetím pro ústřední problém; přesto, že musíme označit jeho řešení za nezcela uspokojivé, a to především z hlediska imanentně kritického a jen částečně i z hlediska transeuntně kritického, nelze nevidět, že recenzovaná kniha je v mnohém směru podnětná a pozoruhodná.

Ludvík Tošenovský

A Discourse of Method (*Pavel Materna:* **Operative Auffassung der Methode;** Rozpravy ČSAV, Praha 1965, 116 pp.)

It is true that the sub-title informs us that it is merely a "contribution to structural methodology", but the content of this contribution and the manner of treatment have a wider range. Materna's conception of method sets out from the assumption that the only effective means (procedure) for solving the problem is a method based on the theory of algorithms, and that a non-algorithmatized approach, or one incapable of being algorothmatized, cannot be considered a method in the exact sense. In spite of the fact that the "operative conception of method" (further OCM) is inconceivable without the theory of algorithms, the author has approached his exposition independently of this theory and in the introduction itself (I, 3) proclaims that parallels between OCM and the theory of algorithms are rather the results of its analyses than an a-priori given idea. Materna's wish that OCM should issue in the theory of algorithms as a result of the logic of the matter (and not the other way round), corresponds also to the fact that he does not mention the relation between OCM and the theory of algorithms in detail until the second last chapter. In the treatment itself, definitions, assertions and their proofs are accompanied by explanations and examples, which renders the exacting text more comprehensible to the reader. In this sense we can agree with the author when he terms his work "propedeutic" (p. 95).

Before giving a brief summary of the contents of Materna's study, we must acquaint ourselves with some of his initial concepts. Materna conceives methodology in agreement, for example, with Bocheński as a theory of method (p. 7; p. 21, n. 46). Structural methodology "is concerned with the syntactic-semantic characteristics common to all methods and the formal side of the mutual correlations of individual methods" (p. 108). OCM sets out from the assumption that "every method can be understood as a regulation governing the sequence of simple basic (elementary) operations" (p. 108).

The explanation proper of the concept of method within the framework of structural methodology (it is not a question of a comprehensive analysis of method!) is introduced by an intuitive conception of method in two interpretations: method as an approach to the presupposed aim and method as the rules determining this approach. The preliminary definition of method is as follows: method is a group of regulations determining the operations which transform input information into output (III A, def. 5-I). The more precise rendering of the concept of method required the introduction of further concepts (see def. 6—18). The author enumerates 5 conditions for introducing the exact formulation of method I (III D, def. 19, p. 24-5) and after a short reference to intellectual and real experiment (theoretical and practical methods) he indicates the way in which it would be possible to attain the exact formulation of method II (III F, def. 19, p. 32). Materna is concerned with the unambiguous reproductability of the method and the core of his OCM is assertion 3, termed a "rationalistic hyothesis" (p. 33). For the analysis of the significance of the rationalistic hypothesis the author considered it essential to introduce the idea of the superposition of methods. This new concept, whose analogue in the theory of algorithms is the composition of algorithms, enables Materna, apart from the closer explanation of the rationalistic hypothesis (see IV D), to touch on the question of the classification of methods from the viewpoint of structural

methodology, to mention the problem of reduction of the "higher" methods to the "lower", and to prepare the ground for his final chapter, dealing with the problem of the operative character of the philosophical method. In Chapter V, Pavel Materna treats the relationship between formal and contentual methods, and throws light on the difference between a symbolic and a real operation. To the question of how formality is connected with exactitude, Materna gives the answer: "... formal methods acquire exactitude precisely because they substitute real operations for symbolic operations." (p. 66) In Chapter VI, entitled "Demonstrative and Non-Demonstrative Methods", the exposition is based on an analysis of the heuristic problem. The author realizes that the descriptive determination of the heuristic method is not sufficiently exact; heuristics is a discipline which deals with problems for which no effective procedure is known (see p. 83). Materna is convinced that even in the field of "heuristics" an effective procedure is possible in principle. As we mentioned already in the introductory passage, it is not until the seventh and penultimate chapter that OCM is related to the theory of algorithms. The certainty (unambiguity) of algorithms is the ideal concretization of the general requirement for the unambiguous reproductability of a method. It is the basis, too, for assertion 12, that "every algorithm is a method" (p. 91) and further, that it is a method even in the sense of the exact formulation of method II. Materna conditionally formulates the inverted assertion 12‴, "every method is an algorithm" (p. 93). The work proper concludes with a brief addenda on the concept of the rationalistic hypothesis; an extreme, and not altogether conclusively demonstrated consequence of OCM is the identification of the concepts "method" and "algorithm". The eighth and final chapter (like the introductory first chapter) is of a different nature. It concentrates on the special problem of the operative conception of philosophical method and is directly connected with the impulses which led Pavel Materna to his attempt at a general analysis of OCM. For this reason we shall now pay closer attention to this problem.

In his introduction (I, 1) the author states the two aims which impelled him to undertake his work. The first could be termed the doubts of a scientific specialist as to the effectiveness of the philosophical (specifically: the dialectic) method in science, the second, on the contrary, represents the doubts of the philosopher as to the justifiability of the demand for operative formulation of this philosophical method. The first attitude leads to the conclusion that philosophical method is irrelevant to specialist science, the second results in the assertion that the demand for the operativity of philosophical method leads to the reduction of a higher type of rationality to a lower.

If we agree with the author's assertion that method — so far as concerns its use, aim and function — is determined by the problem for which it is an adequate method of solution (VIII, 1), and if we supplement it with another of his thoughts, that every method is a certain transcription of a theory (VIII, 2), we could expand the discussion of the given problem independently even in the sense of whether (and to what extent, and in what sense) the philosophical outlook of the author still has at the present day any influence in scientific research. The opinion that the philosophical position of the scientist has no place in the actual manipulation of relevant facts can also be expressed thus, namely that philosophy is always applied only in the interpretation of the results of scientific reserch, and never in the actual process which conditions these results. We consider that this problem along with the problematical effectiveness of philosophical method, is more urgent and has more extensive practical consequences for science in general than has the question of reductionism, which we consider to be secondary (besides which it is one which alarms only philosophers).

In states with a socialist system it has gradually become an accepted assumption that any specialist science should be combined with certain philosophical aspects which are specific for the given branch (while understanding philosophy in the broad sense, that is not, for example, as only ontology and gnoseology, but also as "praxeology", etc.) Philosophical materialism for the Maxist is unified with the dialectical method (the method is simultaneously theory and the theory is a method); the advantages of this method, illustrated by examples from political practice and partly too by certain well-known and no longer problematical phenomena of natural sciences, in the formulation of Stalin's pamphlet on dialectical and historical materialism, have passed into the general consciousness, but often only as a proclamation of faith, and not as an active instrument for revealing new truths. Philosophers themselves, dealing with the working out of the categories of dialectis, have themselves discredited dialectics as a method because instead of applying dialectics to the examination of concrete problematic material, they used the principles of dialectics only to explain the already achieved results of special sciences (in the worse case they only sought at random in these sciences for evidence to support the theses of dialectics.[1]) The dialectic method was usually presented in the

forms of theses, instructions, and statements, not as imperatively formulated directions for action. Perhaps for this reason, too, Materna, instead of the concept "dialectical method" usually employs the concept "pholosophical method", for besides the higher degree of generalization the latter concept is not burdened by associations with the sterile dialectic "method" of the so-called dogmatic period of Marxist philosophy.

Hic Rhodus. In our opinion it is precisely in these wider aspects that Materna's study attains greater significance not only as a specialist study on methodology, but also as a *fundamental contribution urgently addressed to the camp of the philosophers,* calling on them to consider the interpretation of philosophy as a method, and also to consider the nature of what is known as the philosophical method.

Materna is fully conscious of the impossibility of an exhaustive analysis of the problem just mentioned. Therefore he limits himself to the conception of philosophical method as an application of philosophy in the sciences and leaves aside the method of solving the internal problems of philosophy. Characteristic for the philosophical method is the high degree of superposition. Since however the philosophical method would be a method of solving probems common to all sciences as an integrating method in the hierarchy of methods, it could be of assistance in ascertaining the essential relationships not only within a special discipline, but also in inter-discipline connections. The fundamental difficulty here, of course, remains in the fact that what we call the philosophical operator is only slightly operative and that unambiguous reproduotability cannot be ensured. In accordance with this conclusion Materna characterizes the philosophical operator as heuristic (p. 101), i. e. as a method without an effective procedure of solution (cf. p. 83). Nevertheless, the author is convinced of the possibility of finding effective procedure even it this case. In the meantime, however, the insertion of consideration of the philosophical method into an exposition of OCM is — in our opinion — not adequate, and it is precisely the linking of the two groups of problems that with greater urgency warns against the existing philosophical method as an ineffective one.

In our opinion the special and exceedingly delicate problem of philosophical method is discredited for still other reasons that those precisely here adduced. Non-philosophers are usually sceptical about the postulate of the scientific character of philosophy, whether because of the external — "non-exact" — form, in which philosophical thinking expresses itself, or because of the way ("method"), by means of which it reaches — "philosophical" — conclusions, sometimes too for the very questions — "eternal" and "generally human" — which philosophy asks and which it deals with in its own way. If the criteria of what has scientific standing are considered to be irrelevant in philosophy,[2] all the more negative must be the attitude to the symbiosis of philosophy and method, and to the value of this connection for science. The philosophical method appears to be a *contradictio in adiecto.*

It cannot be denied that the attitude to the problems investigated and the very choice of problem are effected by the general circumstances of the time and above all by the philosophical *credo* of the creative worker. On more than one occasion an unsystematic impulse — unsystematic impulse — including too the philosophical impulse — has been a more fruitful one for the development of science than systematized and exact criteria of a method which turned out in concrete connections to be sterile. Just as there does not exist an abstract pure reality without relationships and connections, so too the presupposition of an abstractly pure method, which would enable the effective investigation of the given reality, is equally indefensible. The imperatives of the method chosen (the selection of facts and the approach to their treatment), the language of expression and also the possible interpretations of the results attained in the research are determined both by the current level of scientific work and by the philosophical attitude of the scientist to reality in its most general connections. It must be regretted that the philosophic attitude mentioned is not an effective method. Materna is convinced — although unfortunately he is not able to prove the correctness of his opinion — that an effective philosophical method is in principle capable of being realized. This reviewer, in the sense of Note 2 above — and again without adequate argument — is convinced of the opposite, even although he does not deny the utility of philosophical method.

A striking feature of philosophy is the highly general character of the problems it deals with. On the other hand, only such an approach to reality, which is capable of being generalized and into the bargain of being algorithmatized, can become a method. The high degree of generality is common to philosophy and to method. In distinction to Pavel Materna the present reviewer denies to philosophy in the function of method the possibility of being algorithmatized and the same time expresses his objection to Materna's use of the concept of method only for effective approaches and rules. Besides not even Pavel Materna terms his rationalistic postulate with regard to method any more than a hypothesis, being aware of the

existence and clearly too of the necessary presence of ineffective approaches and rules. (After all not even mathematics, for instance, is altogether algorithmatizable. Even the non-algorithmatizable field of research must of course — even through this results from using an ineffective method — be so far as possible treated in the scientifically most adequate way.) In any case we consider it very useful that in the work under review the concept of method was strictly asserted and further that the advantages of effective (algorithmic) method were prescisely emphasized.

This study of OCM is suggestive in many directions. It directs the reader's attention to the problems of method in a way which is definitely not traditional and combines this field of research with wider philosophical aspects, so that it is of equal interest for example to the natural scientist and to the philosopher. In particular we must not fail to notice and to assess very highly what the author modestly calls merely "propedeutics", namely the very happy combination of exact expounding based on definitions and uncompromising assertion along with an explanatory commentary of exemplary comphehensibility. Materna's book is worthy of note.

In conclusion we may point out that this work of a Czech logician has been published in German, with a fairly extensive summary by the author in English.

[1] It is worth noting that theoretical workers specializing in dialectics (whether in the form of theory and method, or within what is known as dialectical logic) have for the most part ignored the methodological significance of the principles of contemporary formal logic for science, and the need to know them.

[2] An example of this conception is the opinion that science is reason at work, philosophy reason on holiday. The philosophy of man can be interpreted precisely in this sense, as merely the subjectively valid creation of individual philosophers. Pershaps for this reason too, Marxist philosophy, in order to balance and complement the philosophy of man, furthers so vehemently the scientific trend with its purposeful and anxious striving for system, exactitude and objective validity, without regard for the emotional attitude of man and his interests. Even although I sympathize with the efforts of the supporters of the scientific trend, I believe, however, that the core and *raison d'être* of philosophy does not lie in the embodiment of the idea of scientific exactitude in a deindividualized form but in the individual projection of tihs ideal. Thus too the history of philosophy was not, is not and probably never will by the history of science, and the specific attraction of the highly original and characteristic concentration of the objective with the subjective (the speculative) in the individual and unique expression of thought will remain preserved to philosophy. From this point-of-view it would even be possible to assert that a philosophizing based on science is not of itself a science (especially if we realize the vague character of the method of philosophical work) although in principle scientific treatment of philosophizing is possible.

Miloš Dokulil
Translated by Jessie Kocmanová

Jaromír Bartoš: **Kategorie nahodilého v dějinách filosofického myšlení (Die Kategorie des Zufälligen in der Geschichte des philosophischen Denkens)**; ČSAV, Praha 1965, 196 str.

Es kann gewiß kein Zweifel darüber bestehen, daß zu den Arbeiten, die sich in letzter Zeit bei uns positiv ausgewirkt haben, auch das Buch J. Bartoš' gerechnet werden kann. Dies ist auch in der Hinsicht interessant, daß die ursprüngliche Konzeption dieser Arbeit schon vor zehn Jahren enstanden ist, einige Kapitel, die sich auf ihre Problematik beziehen, wurden schon vor einiger Zeit veröffentlicht.

Die Konzeption der Arbeit ist überhaupt nicht einfach; der Autor mußte verschiedene Methoden in Griff nehmen, wobei besonders in den ersten Kapiteln eine gewiße Art von Hermeneutik die Oberhand behält. Es versteht sich von selbst, daß die Hermeneutik auch mit philologischen Analysen untermauert ist. Diese Kapitel erinnern an Vico oder Heidegger, wurden aber, was für Bartoš symptomatisch ist, offenbar ohne erweisbare Beeinflussung von dieser Seite konzipiert. Bei der Rezension einer so großangelegten Arbeit, die fast die ganze Geschichte der Philosophie mitberücksichtigt, hätte es sicherlich keinen Sinn, dem Autor jene oder andere Mißdeutungen vorzuwerfen, die in jeder Arbeit solchen Typs vorkommen müßen. Der Autor konnte auch nicht vermeiden, daß die Bewältigung des Stoffes in einzelnen Teilen der Arbeit sich auf unterschiedlicher Ebene bewegt. An manchen Stellen mußte sich