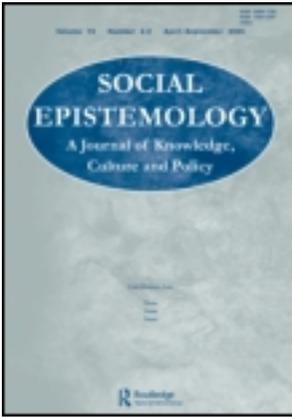


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## Social Epistemology: A Journal of Knowledge, Culture and Policy

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/tsep20>

### Who's the horse? A response to Corlett

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Published online: 19 Jun 2008.

To cite this article: Cecilia Heyes (1991) Who's the horse? A response to Corlett, *Social Epistemology: A Journal of Knowledge, Culture and Policy*, 5:2, 127-134, DOI: [10.1080/02691729108578608](https://doi.org/10.1080/02691729108578608)

To link to this article: <http://dx.doi.org/10.1080/02691729108578608>

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*Symposium on the implications of social and cognitive psychology for analytic epistemology*

## Who's the horse? A response to Corlett

CECILIA HEYES

Corlett proposes a revision of Goldman's<sup>1</sup> account of the relationship between human cognitive psychology and epistemology; a revision that, in Corlett's view, will provide 'Goldman's multidisciplinary approach to epistemics with a more comprehensive base, making it a more plausible theory of knowledge'.<sup>2</sup> More specifically, Corlett claims that human cognitive psychologists consider 'individual cognitive psychology' and 'social cognitive psychology' to be distinctive fields of enquiry, and that it follows from this that the tasks of both individual epistemics and social epistemics include 'primary' epistemological work, i.e. normative, reliabilist evaluation of 'basic' cognitive processes. As a psychologist who often feels uneasy about the role assigned to me and my kind by forward-planning naturalistic epistemologists,<sup>3</sup> especially Goldman, I welcome Corlett's revisionary spirit in general, and his respect for the views of working psychologists in particular. However, I am among those who believe that Corlett has not gone far enough; that he has retained too many of Goldman's assumptions concerning the appropriate division of labor between psychologists and philosophers. This conservatism contributes to making his views on the proper form of interdisciplinary collaboration, as they are stated and as they are revealed by his own use of the psychological literature, somewhat confusing, and, insofar as they are interpretable, liable to foster malpractice.

First, I describe what I find confusing or internally inconsistent about Corlett's attitude toward psychology-epistemology collaboration and, in doing so, indicate why his paper failed to convince me, as an agnostic with respect to this issue, that some/any distinction that could be made between individual and social cognitive psychology is epistemologically relevant. The confusion arises from a contrast between Corlett's actions and words, between his manner of using the psychological literature and his espoused views on how an epistemologist should use it, but it is his actions alone that I take to exemplify, and potentially to foster, malpractice, and I turn to this issue in the latter part of the paper.

### 1. *I'm the horse, you're the horse*

Without being aware of extending Fuller's<sup>4</sup> imagery, I find it natural to regard Goldman's<sup>5</sup> account of how psychologists and epistemologists should collaborate as a

horse-and-dray approach. It assumes that at every stage in the epistemic enterprise, psychology and epistemology are hitched together (albeit at a single point, and with a pin that can be readily dislodged), in a leader–follower relationship. To be sure, it is not always epistemology that plays the horse. Goldman<sup>6</sup> expects psychology to lead when experiments are being run, data analyzed, and descriptive hypotheses formulated, and to sit in the dray at least while epistemologists determine the epistemic norms against which subjects' performance is to be evaluated. However, one of the disciplines is always portrayed by Goldman as the leader; as having greater authority.

Corlett's prose suggests that he accepts much of Goldman's horse-and-dray approach. He chastises Goldman for ignoring ways in which experimental cognitive psychology might 'serve' primary epistemics (not a term that brings to mind shoulder-to-shoulder collaboration) only after recounting Goldman's division of labor proposals without dissent. Since Goldman regards projects like Corlett's and his own as groundwork for normative epistemic appraisal of cognitive functioning, and this normative appraisal as the exclusive province of epistemologists, it is natural therefore to interpret Corlett's prose as an endorsement of Goldman's view that psychology has, at most, a rather limited role to play in laying the foundations, or determining the conceptual anatomy, of process reliabilist epistemics; that at *this* stage, epistemology is the horse. In view of this, I was not a little confused when I reached the end of Corlett's article and realized that, in practice, he regards the acknowledgment *by psychologists* of a distinction between individual and social cognitive psychology as *sufficient* reason to restructure the foundations of social epistemics.

Inconsistency of this kind is, in itself, a trivial offence. Any confusion that it generates might be resolved by assuming that actions speak louder than words; that Corlett rejects the horse-and-dray approach, and wishes to promote critical dialogue, or 'interpenetration'<sup>7</sup> of epistemology and psychology. Unfortunately, although it is consistent with his endorsement of 'the weak replacement thesis' or 'ballpark psychologism',<sup>8</sup> I doubt that this interpretation is correct. Rather than engaging psychologists in critical dialogue, Corlett *defers* to them; passively reporting the fact that psychologists distinguish individual and social cognitive psychology, without indicating, let alone questioning, either the nature or the significance of the distinction. Even if psychologists tended to agree on these issues (and I discuss their disagreement in Section 2) the consequences of this neglect would exemplify the weakness of the horse-and-dray approach.

Consider first the question of *how* individual and social cognitive psychology are supposed to differ. Clearly, they are assumed to have different subject matter, to be concerned with individual cognition on the one hand and social cognition on the other. But what does Corlett take to be the difference between individual and social cognition? My first guess was that Corlett assumed that individual and social cognitive *processes* are different; a fascinating possibility that has been pursued by a few psychologists in recent years, including Cosmides.<sup>9</sup> This was plausible because Corlett assigns so much importance to the distinction between individual and social cognitive psychology in relation to 'primary epistemics', that is, the normative evaluation of basic cognitive *processes*. Contrary to Goldman, Corlett would like primary epistemics to have two branches, one related to individual and the other to social cognitive psychology and, so one might think, this would be unnecessary and inefficient if individual and social cognitive psychology were 'offering up' the same cognitive processes for evaluation. Further support for this view came from comments such as 'What a theory of attribution informs one of are the *reasoning skills* that individual human cognizers

exhibit when in certain social settings'. Although it is not clear why Corlett is petitioning for the evaluation of 'skills' as part of primary rather than secondary epistemics,<sup>10</sup> this statement implies that the relevant reasoning skills are *not* exhibited when people make causality judgments in asocial settings.

In spite of these indicators, it would appear that Corlett does *not* regard individual and social cognitive psychology as being concerned with different cognitive processes. Reviewing some social cognitive psychology research, Corlett lists process-indicative phenomena, like recency effects in memory recall and the perseverance effect, that are obviously ubiquitous; and elsewhere he states firmly that social cognitive psychology involves the study of the 'very same processes' that Goldman takes to be in the purview of individual cognitive psychology, 'processes of attribution, memory, attention, heuristics, schemata, and inference'.

What, then, is the alternative? If not in terms of the cognitive processes that they study, how does Corlett distinguish, or rather, take psychologists to distinguish, social from individual cognitive psychology? Perhaps the most direct statement, accompanied by citation of Fiske and Taylor<sup>11</sup> is: 'SCP [social cognitive psychology] concerns the way in which individual cognizers (and groups of cognizers) in a social context make sense of themselves and others'. This suggests that social cognitive psychology differs from individual cognitive psychology in studying cognitive processes that issue in beliefs with social content, beliefs *about* the social world. Furthermore, given that a social context has been characterized as 'a setting in which a cognizer is directly influenced by another individual cognizer or group of cognizers', this characterization leaves open the possibility that the attention of social cognitive psychologists is further confined to those cognitive processes that, in addition to having social content or 'outputs', have direct social channels of 'input'.<sup>12</sup> To illustrate: according to this view, a person who comes to believe that the lady next door is a thief (social content/output) will certainly be regarded as having performed a cognitive act of interest to the social cognitive psychologist if they arrived at this belief as a result of being told the same by a local policeman (social channel of input). However, the act may not fall within the purview of social cognitive psychology if the person arrived at the belief as a result of observing the lady in question picking pockets on the high street.

Neither the ambiguity nor idiosyncrasy of the foregoing account of the distinctiveness of social cognitive psychology concerns me at this point. The question I am keen to ask is: Why does it *matter*, in the context of process reliabilist epistemics, that cognitive processes sometimes have social inputs, sometimes social outputs, and sometimes both? More specifically, and returning to an earlier point, why would the existence of this sort of diversity lead Corlett to propose that the reliability of the 'very same processes' be evaluated twice, once as part of primary individual epistemics and again as part of primary social epistemics? A reply would almost certainly begin with the claim that there are reasons to expect the reliability of cognitive processes to vary between social and asocial contexts, but I want to know what those reasons are, and I believe that they can only be clearly specified and evaluated by fully combining the empirical and critical skills of psychologists and epistemologists. In terms of Corlett's paper, I would like to have seen, rather than a deferential review of some social cognitive psychologists' empirical findings, a critique of their claims about the differences between individual and social cognition, in terms of both their empirical support and their epistemological significance. For example, psychologists of a similar persuasion to those cited by Corlett, claim that individual differences in cognitive function are more prevalent and pronounced when cognition occurs in a social context;

and that noncognitive, emotional or motivational, processes exert a stronger influence on cognitive processes with social content than on those with asocial content.<sup>13</sup> Is there persuasive experimental or observational data to back up these claims, or does their currency owe more to their intuitive appeal? Could individual differences and interaction with noncognitive processes be expected to change the reliability of cognitive processes and, if so, is there any empirical evidence that this is the case? These are among the questions that need to be answered while building the foundations of epistemics, and they cannot be answered while either epistemologists or psychologists are playing the horse.

## 2. *Mutual congratulation*

So far I have criticized Corlett for his reluctance to penetrate and challenge the views of the psychologists whom he cites; for his willingness to give this particular horse free rein. I now turn to his choice of horse, and thus to an objection that could be raised against the manner in which the psychological literature is sampled not only by Corlett and other analytic philosophers, but also by a scholars that adopt social/historical approaches to theory of knowledge.

Amundson's<sup>14</sup> studies of the history of learning theory demonstrate that, when they become involved in interdisciplinary ventures, epistemologists and psychologists are at risk of forming alliances that would be judged unhealthy by almost anyone with an interest in theory of knowledge. Like those that lay behind the close association of Skinnerian behaviorism with positivism, or Tolmanian learning theory with New Realism, these alliances are in danger of promoting little more than mutual congratulation because they involve communication only between psychologists and epistemologists who held similar or mutually endorsing views prior to collaboration. The development of such a relationship between some contemporary naturalistic epistemologists and cognitive psychologists is suggested by studying the limited range of psychologists' views that epistemologists choose to cite when they are discussing what Corlett, for example, regards as individual cognition.<sup>15</sup> However, when the subject is social cognition, and putative differences between individual and social cognition, bias in the citation patterns of epistemologists and others interested in theory of knowledge is not only discernable but, for any psychologist, striking.

Biased sampling is more apparent when the literature on social cognition is under scrutiny because, especially if one includes European as well as North American contributions, that literature represents a much greater diversity of opinion. The 'information processing' approach has become so widespread among psychologists who do not focus on social interaction (those who, in Corlett's terms, study 'individual cognition') that nearly all of them would give roughly the same reply when asked, for example, why recent events are more reliably recalled than earlier events, or why familiar patterns are more readily discriminable than unfamiliar patterns. The odd Gibsonian might provide some variety, as would those exceptional connectionists who see their approach as an alternative to, rather than a development of, the information-processing approach, but the dissenting voices would be few. In contrast, while a large proportion of social psychologists subscribe to the information-processing approach, many adopt radically different perspectives. If one asked a random sample of social psychologists why, for example, initial judgments of others tend to persist, or why individual differences in categorization are greater for social than for asocial objects,

there would be profound disagreement about not only the answers, but also the appropriateness and coherence of the questions.

'What is the difference between individual and social cognition?' is a question that reveals the diversity of opinion among social psychologists in all its splendour. One way of taxonomizing the range of views is in terms of whether proponents accept or reject (a) the information-processing approach in social psychology, and (b) the assumption that individual and social cognition can be distinguished as psychological functions, rather than fields of study. As I pointed out in the first section, among those who accept both (a) and (b), many claim that individual and social cognition differ primarily in terms of their *contents*, or inputs and outputs,<sup>16</sup> while others assert that there are distinctive processes of inference that are activated in social but not in asocial contexts, and that it is only when these are in operation that cognition may properly be described as social.<sup>17</sup> Moving on to a second cell in my classification table, Forgas<sup>18</sup> is prominent among those social psychologists who combine a sympathetic attitude toward the information-processing approach with rejection of the view that there are two fundamentally different kinds of cognition: social and individual. He claims that 'individual cognition' is an empty set; that all cognition is 'a profoundly and inalienably social activity',<sup>19</sup> by virtue of both its function and its origins in social interaction. (The complementary view—that 'social cognition' is an empty set—is commonly held by psychologists who do not focus on social interaction,<sup>20</sup> but is not represented by contemporary social psychologists, either sympathetic or unsympathetic to the information processing approach.) A large group of social psychologists occupy the third cell. They share Forgas' view concerning the social character of all cognition, while vociferously rejecting what they take to be the narrow cognitivism of information processing.<sup>21</sup> Finally, although I have not come across any social psychologists who explicitly *reject* the information-processing approach and accept that individual and social types of cognition are distinguishable, there are several who may be assigned to the fourth cell because they hold the latter view but have failed, for a variety of reasons, to embrace the information-processing approach.<sup>22</sup> These researchers have tended to distinguish individual and social cognition in terms of both content and the complexity of processing.

Although crude, this sketch of the range of positions adopted by social psychologists with respect to the social cognition–individual cognition issues provides a framework for consideration of the way in which Corlett has sampled the relevant psychological literature. On the positive side it should be noted that he not only referred to the digests of psychological research provided by review papers and edited volumes, but also used journal articles reporting the results of single studies. However, I am troubled by the fact that Corlett only cited social psychologists in one of the four cells. He referred only to the work of psychologists who endorse and/or adopt the information-processing approach, and failed to mention any of these who challenge the view that individual and social cognition are distinguishable. The availability of argument and evidence against such a distinction is clearly relevant to Corlett's main thesis and, therefore, its neglect is a serious matter. However, it is Corlett's focus on the views of social psychologists who favor the information-processing approach that makes me suspect that he is contributing to the development of an alliance of mutual congratulation between psychologists and naturalistic epistemologists. The information-processing approach provides an image of a 'stand alone computer in attractive dermal housing';<sup>23</sup> that is, it portrays thinking as precisely the sort of isolated, inferential process that epistemologists and logicians have long taken it to be.<sup>24</sup>

In singling out psychologists who support the information-processing approach, Corlett is sampling the literature in the same way as Goldman did when discussing primary epistemics.<sup>25</sup> It seems likely that Goldman will continue to seek information and support from the same quarter as he develops his social epistemics, but this is difficult to establish because he cites so few psychologists in his main statement on this subject to date.<sup>26</sup> If he does continue to sample the psychological literature in the same way, it seems reasonable to ask how he would justify his selection of this particular social practice or method. In a slightly different context (responding to the objection that veritism is regressive) Goldman suggests that it is legitimate to adopt a social practice that has been: (a) chosen using a social practice that has already 'passed' a veritistic evaluation; (b) chosen on the basis of epistemic evaluation involving nonsocial methods or processes; or (c) simply 'evolved'. At this early stage in the development of social epistemics, presumably option (a) is not available to Goldman. The practice of referring to the work of information-processing psychologists may well have 'evolved' among naturalistic epistemologists, but it would be odd if Goldman were to pursue option (c). Evolution relates to adaptation, and in Goldman's view 'There is no tight connection, at least no necessary connection, between intellectual strength and adaptiveness'.<sup>27</sup> That leaves option (b), and if it is through nonsocial methods that Goldman has chosen his sampling procedure, I would like to know how they might issue the conclusion that this procedure is not 'necessarily self-endorsing'.<sup>28</sup>

Before I am accused of showing systematic bias in my own sampling of the literature, I should note that neither social psychologists nor 'social constructivists' are apparently immune to the lure of an alliance of mutual congratulation. For example, Gergen,<sup>29</sup> a social psychologist who rejects the information-processing approach and regards all thinking as 'social', tries to encourage fellow psychologists to become involved in social epistemology citing a very distinctive group of existing contributors. Reference is made to social constructivists,<sup>30</sup> and to historians of science understood to have a relativist bent,<sup>31</sup> but epistemologists, historians and philosophers of science whose work has been influenced directly by the analytic tradition are completely ignored. Essays by the social constructivists Barnes<sup>32</sup> and Collins<sup>33</sup> also provide examples of the relevant sort of peculiarity in citation behavior. After opening with the suggestion that 'Empirical studies of the acquisition of concepts may be relevant not just to the problems of psychology but to those of sociology and epistemology as well',<sup>34</sup> Barnes completes his essay without referring to any such studies, or indeed to any work by a psychologist. It may be no more than a coincidence that all of the relevant studies that I can think of have the stamp of methodological individualism. If it is not a matter of chance, Barnes' failure to cite psychologists on the issue of concept learning may represent a reluctance to draw upon the work of those who hold uncongenial views. In contrast with Barnes, Collins<sup>35</sup> does refer to the work of some psychologists in his discussion of 'Learning through enculturation'. However, of the three psychologists he cites,<sup>36</sup> not one embraces the information-processing approach, although it is, in effect, the putative failure of this approach to provide a convincing model of learning that is the main theme of his essay.

To conclude, I have queried the deference that Corlett shows toward the views of the psychologists he chooses to cite, and, in the second section, the bias toward self-endorsement that is apparent in his selection of psychologists for citation. Corlett is certainly not alone in displaying this kind of bias. Indeed it is so common in social epistemology and elsewhere, that its operation and its potential consequences can be easily overlooked. In view of this, Corlett's article is valuable because it keeps

the question of how psychologists and epistemologists *should* collaborate on the agenda.

### Notes

1. GOLDMAN, A. I., 'Foundations of social epistemics', *Synthese*, 73 (1987), pp. 109–144.
2. CORLETT, J. A., 'Epistemology, psychology and Goldman', *Social Epistemology*, this issue.
3. HEYES, C. M., 'Uneasy chapters in the relationship between psychology and epistemology', in GHOLSON, B., SHADISH, W. R., NEIMEYER, R. A. and HOUTS, A. C. (Eds), *Psychology of Science*, Cambridge University Press, Cambridge, pp. 115–137 (1989).
4. FULLER, S., 'They shoot dead horses, don't they? Philosophical fear and sociological loathing in St. Louis', *Social Studies of Science*, in press.
5. GOLDMAN, A. I., 'The relation between psychology and epistemology', *Synthese*, 64 (1985), pp. 29–68; *Epistemology and Cognition*, Harvard University Press, Cambridge, Mass. (1986).
6. GOLDMAN (1986) (see note 5).
7. FULLER, S., 'One small step for naturalized epistemology, one giant leap for analytic philosophy', *New Ideas in Psychology*, in press.
8. KORNBLITH, H., 'What is naturalistic epistemology?', KORNBLITH, H. (Ed.), *Naturalizing epistemology*, Bradford Books, MIT Press, Cambridge, Mass., pp. 1–13 (1985).
9. COSMIDES, L., 'Has natural selection shaped how humans reason?', *Cognition*, 31 (1989), pp. 187–276.
10. GOLDMAN (1986) (see note 5).
11. FISKE, S. T. and TAYLOR, S. E., *Social Cognition*, Addison-Wesley, Reading, Mass. (1984).
12. GOLDMAN (1987) (see note 1).
13. TAYLOR, S. E., 'The availability bias in social perception and interaction', in KAHNEMAN, D., SLOVIC, P. and TVERSKY, A. (Eds), *Judgement under Uncertainty: Heuristics and Biases*, Cambridge University Press, Cambridge, Mass., pp. 190–200 (1982). HOLYOAK, K. J. and GORDON, P. C., 'Information processing and social cognition', in WYER, R. S. and SCRULL, T. K. (Eds), *Handbook of Social Cognition*, Vol. 1, Lawrence Erlbaum, Hillsdale, NJ, pp. 39–70 (1984).
14. AMUNDSON, R., 'The epistemological status of a naturalized epistemology', *Inquiry*, 26 (1983), pp. 333–344; 'Psychology and epistemology: the place versus response controversy', *Cognition*, 20 (1985), pp. 127–153.
15. HEYES (1989) (see note 3).
16. See for example: FISKE and TAYLOR (1984) (see note 11). HOLYOAK and GORDON (1984) (see note 13). TAYLOR (1982) (see note 13).
17. COSMIDES (1989) (see note 9).
18. FORGUS, J. P., 'What is social about social cognition', in FORGUS, J. P. (Ed.) *Social Cognition*, Academic Press, London, pp. 1–25 (1982).
19. FORGUS (1982), p. vii (see note 18).
20. Discussed in: GERGEN, K. J. and SEMIN, G. R., 'Everyday understanding in science and daily life', in SEMIN, G. R. and GERGEN, K. J. (Eds) *Everyday Understanding*, Sage, London, pp. 1–18 (1990). HOLYOAK and GORDON (1984) (see note 13).
21. See for example: GELLATLY, A. G. and ROGERS, D., 'The individual and the social in cognitive psychology', in GELLATLY, A. G., ROGERS, D. and SLOBODA, J. A. (Eds), *Cognition and Social Worlds*, Clarendon Press, Oxford, pp. 1–9 (1989). GERGEN, K. J., 'Social psychology and the wrong revolution', *European Journal of Social Psychology*, 19 (1989), pp. 463–484. MOSCOVICI, S., 'The phenomenon of social representation', in FARR, R. and MOSCOVICI, S. (Eds) *Social Representations*, Cambridge University Press, London (1984).
22. See for example: HEIDER, F., *The Psychology of Interpersonal Relations*, Wiley, New York (1958). HIGGINS, E. T., KUIPER, N. A. and OLSON, J. M., 'Social cognition: a need to get personal', in HIGGINS, E. T., HERMAN, C. and ZANNA, M. (Eds) *Social Cognition: The Ontario Symposium*, Vol. 1, Erlbaum, Hillsdale, NJ (1981). SHERIF, M. and CANTRIL, H., 'The psychology of attitudes: II', *Psychological Review*, 53 (1946), pp. 1–24.
23. GELLATLY and ROGERS (1989), p. 1 (see note 21).
24. HAUGELAND, J., *Artificial Intelligence: the Very Idea*, Bradford Books, MIT Press, Cambridge, MA (1985). SOBER, E., 'Psychologism', *Journal for the Theory of Social Behaviour*, 8 (1978), pp. 165–191.
25. GOLDMAN (1986) (see note 5).
26. GOLDMAN (1987) (see note 1).
27. GOLDMAN (1987), p. 130 (see note 1).
28. GOLDMAN (1987), p. 141 (see note 1).
29. GERGEN (1989) (see note 21).
30. LATOUR, B. and WOOLGAR, S., *Laboratory Life: the Social Construction of Scientific Facts*, Sage, Beverly Hills, CA (1979). KNORR-CEITINA, K. D., *The Manufacture of Knowledge*, Pergamon Press, Oxford (1981).
31. KUHN, T. S., *The Structure of Scientific Revolutions*, University of Chicago Press, Chicago, IL (1970). FEYERABEND, P. K., *Against Method*, Humanities Press, New York (1976).

32. BARNES, B., 'Ostensive learning and self-referring knowledge' in GELLATLY, A., ROGERS, D. and SLOBODA, J. A. (Eds), *Cognition and Social Worlds*, Clarendon, Oxford, pp. 190–203 (1989).
33. COLLINS, H. M., 'Learning through enculturation', in GELLATLY, A., ROGERS, D. and SLOBODA, J. A. (Eds), *Cognition and Social Worlds*, Clarendon, Oxford, pp. 205–214 (1989).
34. BARNES (1989), p. 190 (see note 32).
35. COLLINS (1989) (see note 33).
36. CAMPBELL, D. T., 'Ostensive instances in entitativity in language learning', in GRAY, W. and RIZZO, N. D. (Eds), *Unity Through Diversity: a Festschrift for Ludwig von Bertalanffy*, Gordon & Breach, New York, pp. 1043–1057 (1973). McDERMOTT, D., 'Artificial intelligence meets natural stupidity', in HAUGELAND, J. (Ed.), *Mind Design*, MIT Press, Cambridge, MA, pp. 143–160 (1981). POLANYI, M., *Personal Knowledge*, Routledge & Kegan Paul, London (1958).