

The Day After The Day Of The Experts. Lessons From J.M. Cattell, B.I. Gilman And C.S. Peirce

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ABSTRACT

In his 1914 paper “The Day of the Expert,” Benjamin Ives Gilman expressed the hope that organizations would be ruled by experts instead of managers and politicians. My first part addresses his conception of expertise. Significantly, he referred to J. McKeen Cattell’s article “University Control.” In this paper, Cattell condemned “the transference to university administration of methods current in business and in politics.” I thus examine university policy as a particular case and ask whether managers would do better than experts at the head of colleges. My last part investigates the possibility of a general science of reasoning, whose experts would properly be experts in taking steps, decisions and actions, an essential quality to managers. I follow the lead of Charles S. Peirce, who taught both Gilman and Cattell. I eventually suggest that boards should be mixed, and argue against leaving the whole power to managers, because they are not and cannot be experts in (good) reasoning

Keywords: experts, university, management, reasoning, Peirce.

Some of the most fruitful contemporary discussions of the problem of expertise bear on the expert-novice relation (under which conditions should a layperson defer to an expert?) and on the expert-expert relation (how to evaluate disagreement between peer experts?). In this article, I will focus on the relationship between experts and managers. Thus, my concern is not properly the tension between democracy and technocracy, which is often alluded to in philosophy of expertise; it is the tension between two kinds of technocrats: representatives of knowledge on the one hand, of management on the other. Should the direction of a group be left to experts of the domain relevant to this

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group, or to people experienced in policy and economy? I suggest that boards should be mixed, and argue against leaving the whole power to managers because they are not and cannot be experts in (good) reasoning. Benjamin Ives Gilman's 1914 paper "The Day of the Expert" (DE) will be the guideline of my discussion. I first expose Gilman's definition of experts and his view on their role in corporations' organization. I then examine university policy as a particular case and ask whether managers would do better than experts at the head of colleges. My last part investigates the possibility of a general science of reasoning, whose experts would properly be experts in taking steps, decisions and actions, an essential quality to managers. I conclude that such a science is probably a myth, so that instead of replacing scientific experts by managers, we should keep them in place or put them back onto leading positions.

1. Has the Day of the Experts Arrived Yet?

The attention given to expertise is not new, as shows a reflection displayed by a philosopher one century ago. In his 1914 presidential address given at the ninth annual meeting of the American Association of Museums, Benjamin Ives Gilman, the curator of Boston's Museum of Fine Arts, exposed some thoughts about the role of experts¹. He started from a rather pessimistic analysis: the talks given by art historians and museum curators are fundamental for their practice, because they contribute to the development and exchange of ideas, but they weigh very light when questions of administration and political decisions are at play. "We have the voice here. How much voice have we at home?" (DE, 771) As a corporation, art experts hold relevant knowledge and should be at the steering wheel, but they feel powerless. Gilman divides his point into four questions: "What has been the position of the expert among us? What change suggests itself? What are the bearings of change? What are the prospects of change?" (DE, 772) These questions are almost a pretext for arguing that now is "the Day of the Expert," a phrase which gives the paper its title.

Gilman does not use these words carelessly. Here is his attempt to define them: "By expert will here be meant a person whose achievements demand

¹ He would later mention the point of view of lay people in a totally different context. See Gilman, B.I. (1927). Relativity and the Lay Mind (I) & (II). *The Journal of Philosophy*, 24(18), 477–486 & 24(19), 505–521.

special aptitudes long exercised; and by his day a time when these developed abilities are used to the best advantage of the community” (DE, 772). It may interestingly be compared with some of the many contemporary attempts to define an expert. Hubert Dreyfus zeroes in on the practical skills involved, contending that “the ability to make more subtle and refined discriminations is what distinguishes the expert from the proficient performer. [...] with enough experience in a variety of situations, all seen from the same perspective but requiring different tactical decisions, the brain of the expert performer gradually decomposes this class of situations into subclasses, each of which shares the same action” (Dreyfus 2002, 371–2). According to Alvin Goldman (2001, 91–92), the truth of the propositions stated by an expert in his domain are most significant, so that cognitive expertise can be defined in veritistic terms, even though an expert is not only someone who has more true beliefs about a field than the average. Goldman grants that the criteria for expertise also include the disposition to exploit his information to form beliefs in true answers to new questions that may be posed in the domain, especially about the principal questions of interest, or ‘primary questions,’ to the researchers and students. Some authors also try to define continuous steps from the novice to the experts of different kinds, such as contributory and interactional experts, according to their capacity to really contribute new results or only ‘talk the talk’ of inventors (Collins and Evans, 2007).

A retrospective glance at Gilman’s earlier definition, “a person whose achievements demand special aptitudes long exercised,” shows the following features: 1. it focuses on experts rather than expertise, which sometimes involves techniques, instruments or scientific discoveries (e.g. DNA analysis); 2. it requires some effective results – ‘achievements’ –, which can be either true propositions or successful actions; 3. it includes the possession by the expert of ‘special aptitudes,’ which seem to refer to dispositions, capacities and practical skills rather than information, even if such aptitudes may produce knowledge; 4. it also demands a long exercise. This last point is especially interesting, since it introduces a temporal criterion which often lacks in contemporary presentations. *Experitus* is the one who has experience and is well-versed in some activity due to her long acquaintance with the field and her long practice. An expert is reliable because she was more often right than wrong most of the time during a long period. It seems to rule out the cases of deviant expertise or ‘cloistered experts’ taking silly decisions, for instance illustrated by D. H. Freedman (2010).

This last point is fundamental. In effect, giving the power to experts is often seen as a threat for democracy. H. Landemore (2010) argues that cognitive diversity, that is, taking into account the larger number, is always epistemically more fruitful and reliable than the opinion of the few. Giving the power to a group of technicians is not only epistemically dangerous – many studies show that very often they do not produce better results than laypeople – but anti-democratic, not to mention the not so rare cases when they are victims of a conflict of interests.

It is also in terms of democracy that Gilman raises the problem of the experts' power, but with a different view. According to him, two models of democracy may be conceived. In the first one, all men are to be treated equal, whatever their differences. In the other, all men are to be treated equal as long as they show equal. One could add to support Gilman's view that, although the first model may seem fairer or more natural to us, it appears that we do not really want it to be applied; for instance, in reason of their deeds, we do not want criminals to be treated like anyone else. Thus, it makes sense, if not to reward 'better' citizen, at least to acknowledge individual differences of competence. Equal rights do not imply ignorance of differences, including differences of skills. It relies on the pragmatist maxim that real differences are equivalent to a difference in possible practical effects, as I will show in the third section of this article. This rational principle is intended to avoid mysterious, invisible entities; hence: "Equality proclaims the logical postulate that all real differences of human capacity are sensible facts of the present world [...]. The doctrine of equality affirms that only those persons who show themselves different should be treated differently" (DE, 774). Therefore, true democracy taking the individual differences of aptitudes into account is meritocracy: "It is the merit system generalized. Admitting all verifiable disparities of human capacity, and excluding all mystic disparities, the equality of the Declaration is simple common sense" (DE, 774).

In Gilman's words, it reflects a contrast between the 'colonial method', i.e. the English, and the American method. The so-called colonial method focuses on a purpose to be achieved. Consequently, regard is given to the special competence required to accomplish it. The national method of the US, conversely, focuses on the persons chiefly, who are held to all have the same general competences. It is supposed that someone able to fulfill a certain task will equally show ability for a totally different one. "We of the United States have been nurtured in the belief that a man who has distinguished himself in

any one direction will also distinguish himself in any other” (DE, 773). In this last model, experts are not needed. But it fits a society where no outstanding achievements are required, Gilman argues, where “surpassing excellence has not for the most part been essential.” That ‘the day of the expert’ has come means that from now on “only the best has become good enough for us. The Jack-of-all-trades is master of none, and our progress calls for masters everywhere” (DE, 774).

As a consequence, it appears that relying on experts promotes a form of diversity. Specialization is a way of driving a homogenous group to a variety of directions and exploring new, diverse possibilities of knowledge and practice. “The new ideal is not that of a society of persons increasingly like each other, and hence increasingly sufficient each to himself, but of persons increasingly different each from the other, and hence increasingly necessary each to the other” (DE, 775). In this sense, the diagnostic is the opposite of Hélène Landemore’s, who regards it as an impoverishment of the democratic diversity. Of course what she means is that a group of experts in a definite field tend to be more homogeneous than a group of laypeople taken at random, but the variety of expertise also must be taken into account.

2. University Policy

It may seem to us that the day of the experts that Gilman was calling forth arrived long ago. It is true that in politics, we still witness “the practice of naming any capable person for any office,” and even the habit of naming anyone for any office. But in many domains (in fact, including politics), experts have at least part of the decisional power. Gilman was alluding to the question of how to run a museum, since he himself was a curator. He advocated for a “positive control by mixed boards.” He suggested that “any corporation should include members embodying in their own persons the special types of skill essential in carrying on its work” (DE, 776). These experts should take part of the decisions, and even the most important part, in providing directions and aims to their institution, viz. museums: “the accumulation of our wealth has outrun our provision of knowledge and skill to utilize it. The positive system of control repairs this omission, now out of date. It supplements our present provision of means by providing also for ends. The men of means and

the men of ends must join forces in order to the best achievement of their common purpose” (DE, 776).

Gilman thus supports the presence of experts at the head of museums together with the usual political and economic leaders. But one can surmise he did not target only museums. His vision of society as having reached the time of excellence and the related need for experts implies a whole reorganization of social structures. Significantly, he referred in his paper to J. McKeen Cattell’s article “University Control” published in *Science* in 1906. Cattell favored the idea that professors and alumni had a seat around the table of the directors of every university in the USA. Cattell described the situation he knew to be “between the Scylla of presidential autocracy and the Charybdis of faculty and trustee incompetence. The more incompetent the faculties become, the greater is the need for executive autocracy, and the greater the autocracy of the president, the more incompetent do the faculties become” (Cattell, 1912, 804). The solution to this vicious circle is a representative system.

Experts – namely, professors and alumni – are here viewed as a lever for democracy, not an impediment, due to the fact that for a university, the people to be represented are experts themselves. Are universities a special case of administration in this respect? It could seem that the society composing a university gathers people each of whom possesses a certain expertise in an academic field, and that for this reason the board of a university should be at least partially made of experts. But could not the same be said about a chocolate factory, a steamer, a farm, or a set of farms composing a village? In all these cases, a group shares a common purpose and each member contributes either same or complementary abilities. Thus, all corporative groups are made of experts and should be democratically represented by experts. The theoretical limit of this model is a group whose common purpose would be too vague or the abilities too poorly related to its end; it is basically what ‘civil society’ is, hence the idea that the experts model of government is not good for democracy.

Here is Cattell’s plan for a new system of universities:

There should be a corporation consisting of the professors and other officers of the university, the alumni who maintain their interest in the institution and members of the community who ally themselves with it. In the case of the state universities part of the corporation would be elected by the people. This corporation should elect trustees having the ordinary functions of trustees –

the care of the property and the representation of the common sense of the corporation and of the community in university policy. (Cattell, 1912, 805)

Where Gilman did not go into the details of the mixed board, Cattell here makes it clear that the corporations of experts would elect trustees in charge of running the everyday routine and management of the university. The general function of the administrative part of the board would be, Cattell surprisingly grants, to represent “the common sense of the corporation.” It may refer to the common financial, economical, strategic, etc. interests of the university. Or does it allude to the lack of common sense from the part of the so-called experts? It is not unlikely that academics are not the best people to run a university and that they need the help of specialists in budget, administration, management and economy.

Therefore, the picture does not involve experts vs. novices, but rather people belonging to the field (or rather, one of the fields) covered by the institution vs. people having expertise in auxiliary fields. Even if he does not understand anything to geology, an economist running a department of geology is not a layperson. What Cattell is unhappy with is in fact “the transference to university administration of methods current in business and in politics.” But for the affairs to be run in a proper way, are not some competences in economy and politics also required?

Two logics are in conflict: on the one hand, excellence is sought and requires an increased role of experts, but on the other hand, economic constraints are increasingly significant. It is very much reminiscent of what we are experiencing nowadays. ‘Excellence’ has become a key term in academic mumbo jumbo: ‘Centers for Excellence’ in the US, the ‘Research Excellence Framework’ (REF) allocating funding in the UK, the ‘Excellence Initiative’ of the Federal German Ministry of Education and Research, ‘Laboratoires d’Excellence’ (Labex) in France, ‘Scuole e Collegi di Eccellenza’ in Italy... But in the same time faculties, or their representatives, are deprived of their decisional powers, transferred to administrators and managers. The facts seem to contradict the words.

This apparent paradox may be due to the appearance, in the end of the 19th century (e.g. London School of Economics, Sciences Po Paris) and more intensively after the Second World War (e.g. College of Europe, Escola Superior d’Administració i Direcció d’Empreses, École Nationale d’Administration, etc.) of schools whose purpose was to form the elite in administration and management. Taylor’s influential *Principles of Scientific*

Management, published three years before Gilman's address, are not to be omitted. Does the notion of competence in general management make sense? When Gilman contrasted the forthcoming day of the expert to the past day of the novice, he meant that the dispositions someone developed in a field are not necessarily a sign for dispositions in a different field. But what if the skill consists in the ability to transfer one's abilities from one field to another? I will explore in the last section of this paper one possible way to interpret the art of being a specialist in management.

3. Can There Be Experts in Reasoning?

Auguste Comte used to say that a philosopher is a specialist in generalities. He also advocated the formation of a class of scientific politicians, who would mediate between people and rulers in forming expert opinions. What is the competence of a political expert? Plato's model of the king philosopher holds it to be the mastery of dialectics, the art of divisions. Aristotle's model of the *phronimos* sees it as a disposition to invent rules in situation. The enlightened king is a metaphysician, whereas Pericles has practical knowledge.

The question I would like to address in this third section is whether logical skills are a good candidate for this ability. The reason of this hypothesis is that the art of management seems to consist in taking right decisions according to the circumstances. It may be viewed as the art of drawing good inferences from a set of premises. It is not the only possibility and is probably a limited take on it, but I will not go any further within the present article. A more straightforward point against managers could be made (see e.g. Stewart, 2009), but it is not my purpose. My presupposition here is that if there possibly are good managers, they are able to manage anything, being experts in management in general. Their skill is indifferent to content. It must consist in some formal ability to proceed to a next step according to the information at hand. Such is the art of reasoning.

In order to consider and evaluate such a proposition, I will make a detour tying up Gilman and Cattell to a third historical figure. The man who connects them is the philosopher, logician and scientist Charles S. Peirce. Benjamin Ives Gilman was his student in logic and philosophy when Peirce taught at the John Hopkins University in the 1880s, and a rather active member of the Metaphysical Club. This is why I previously referred to Gilman as a

philosopher, although he worked in art history. He kept lecturing, writing and publishing papers in philosophy until his retirement from Boston's Museum of Fine Arts in 1925². As for J. McKean Cattell, he held the title of Fellow in philosophy at the same university during these years, and also took part to the meetings of the Metaphysical Club. Gilman published a chapter in the *Studies in Logic* collection directed by Peirce. In 1901, Peirce had Cattell elected as a psychologist at the National Academy of Sciences, against his closest friend William James. The three men were therefore strongly connected, and it is beyond doubt that Peirce influenced much the other two.

Although Peirce did not explicitly write about expertise, he made some points quite clear. Experts, and especially scientists, are of no use if they do not combine their specialized knowledge with a general sense of culture, that is, with a disposition for avoiding prejudices and judging and reasoning correctly:

[...] the average scientist has become far more specialized, and instead of being the man of general and broad culture that he used to be, he is turned into an ignorant fellow, very little, if at all, intellectually higher than an average photographer, outside of his specialty. His peculiar narrow but deep training has made him a queer mixture of enlightenment and of what is equivalent to superstition (Peirce, 1911, MS 856).

To be a scientific expert does not prevent from bad reasoning. Far from being a gift for a few, the ability to draw conclusions in a valid way should be a universal capacity, Peirce believed. The power of reasoning should be shared among all people, although only some specialists make a good use of it. When sham reasoning is too threatening, or when complicated reasoning is indispensable, people sometimes "hire a specialist to perform it" (Peirce, c. 1896, CP 1.58). What is a specialist of reasoning? "For my part, I consider that the business of drawing demonstrative conclusions from assumed premisses, in cases so difficult as to call for the services of a specialist, is the sole business of the mathematician" (Peirce, 1894, CP 4.134).

One could be surprised that mathematicians, not logicians, are called forth when a problem of reasoning shows up. It is probably due to the idea that, according to Peirce, the business of logic is to analyze reasoning into as many steps as possible, whereas the business of mathematics is to draw inferences as straightforward as possible (Peirce, 1901, CP 4.373). I will not consider the

² Among his most significant papers are: The Logic of Cosmology; Reading the Kritik Afresh; The Dilemma of Darwinism; The Design Argument Survives Darwinism; A Logical Study of Law; Psycho-Anaesthesia.

question whether logic or mathematics is the most appropriate science for reasoning, since the uses of the words are different for us and in Peirce's time (e.g. his 'logic of probabilities' today belongs to maths).

Peirce's avowed purpose in teaching logic at Johns Hopkins was "to communicate the *logica utens*, and to make expert reasoners of the pupils, able to form clear ideas, to avoid fallacies, and to see in what quarters to look for evidence" (Peirce, W4.xxvi). He famously viewed his age as "the age of methods," and the university (and especially Johns Hopkins) represented for him the university of methods. It refers specifically to the idea that logic, in its part called 'methodetics,' is to provide the "method of methods," that is, to give the power of discovering which method is right for which domain of knowledge. Abilities in logic are supposed to confer a sort of meta-capacity for all kinds of science.

After his years of lecturing at the university, Peirce even planned a wide course all over the United States, in order to bring his fellow people up to the required standards of sound reasoning. Although solitary and desperate, his enterprise had an educational purpose not very far from our schools of management. He wanted to teach the rulers-to-be of the country how not to fall into reasoning traps. His ambition for these "expert reasoners" was to be able to invent their own rational methods in the direction they would trace. That is why "a man needs to be more than a mere specialist; he needs such a general training of his mind, and such knowledge as shall show him how to make his powers most effective in a new direction. That knowledge is logic" (Peirce, W4.380).

Such a faculty has to be trained, for "powers of reasoning in any but the most rudimentary way are a somewhat uncommon gift, about as uncommon as a talent for music. Indeed, a much smaller number of persons actually attain to any proficiency in reasoning" (Peirce, 1898, CP 1.657). This endeavor should be inscribed in the broader debate on the characterization of logic as an art or a science. Peirce firmly rejected its definition as an organon for other sciences and as the art of thinking; he viewed it as a genuine science. Being a science, the ability to reason properly can be taught and improved. Peirce seems to have been sincerely convinced that it took only a good training to become an expert in reasoning, not a special disposition.

Peirce himself was called forth as an expert together with his personal trainer in (mathematical) reasoning, viz. his father, one of the leading mathematicians in the United States. The Peirces father and son were solicited

in 1868 as expert witnesses in the Howland Will Case. Howland's niece, Henrietta Robinson, was suspected of having forged a signature in order to invalidate the last will of Sylvia Ann Howland. The 'experts' decomposed Howland's signature in a number of downstrokes, and proved that the downstrokes of the signature in the suspect document and the genuine signature overlapped in a highly improbable way. Benjamin Peirce concluded that: "The coincidence which has occurred here must have had its origin in an intention to produce it" (quoted in Meier & Zabell, 1980, 499). Although, as Benjamin Peirce confessed himself, he had no expertise in handwriting, it is an outstanding case of forensic mathematics primarily based on the mastery of probabilistic reasoning.

Nevertheless, such an expertise in reasoning belongs to a specialized area. In this case, Peirce was an expert in the sense of the justice courts. It does not mean that he was a master in reasoning *tout court*; and were he, it does not prove that it was an acquired competence rather than a special, personal disposition. In teaching logic, Peirce manifestly supported the view that competence in general reasoning is a skill that could be developed. But empirical research has shown ever since that such optimism must be qualified. Not to mention abductive powers, which Peirce eventually regarded as an intuitive disposition and a stroke of genius rather than a scientific, repeatable process, even deduction has appeared to be founded on unstable grounds.

One of the most famous examples of an empirical study of deduction, namely the Wason selection task, turns out rather unsuccessful. Four cards are presented to the subject of the test, showing respectively two letters (say, A and E) and two numbers (say, 3 and 5). Each card has a letter on one side and a number on the other. Which card must be turned over in order to verify the proposition: "behind each E is a 5"? Most people fail to recognize that the correct answer is E and 3, not E and 5. The striking point here is that the proficiency of logicians (those who did not know the test yet, at least) and students in logic is no better than the average, although the selection task only implies the use of the logical rule of *modus tollens*, a basic principle familiar to every logician. It is a sign that training in logic does not improve the chances to make good reasoning in situation. Logicians do not 'think better,' nor are they experts in drawing the right inferences, even less in taking the good steps.

Other arguments, such as Harman's, dissociate reasoning and logic in showing that they obey different principles. Good reasoning involves a principle of "clutter avoidance" (Harman, 1986, 11–15), which goes against

the logical principle of closure under deduction. A clever reasoning does not necessarily consist in drawing a correct inference; it may result in revising the premises of the inference for instance. Such examples and others argue in favor of not reducing the process of reasoning, which is a mental activity dependent on a context, aiming at changing beliefs, to the universal laws of logic. There are professors of logic, but not of apt reasoning.

If there exists nothing like a general competence for good reasoning, there cannot be good deciders or managers in whatever area. In Gilman's mouth: "The belief that a man who has shown exceptional powers in any one direction will also show them in any other is such a beautiful theory, exposed by our political creed to slaughter by ugly facts" (DE, 774). To judge by the consequences is a principle which Gilman makes his: he only draws the consequence of the failed attempts to rule domains of knowledge without possessing this knowledge. Therefore, whoever fails in a domain cannot be said to be an expert in this domain. It explains the importance of the empirical, experiential element in Gilman's definition of the expert: someone whose long practice was successful in a domain.

It is manifestly transposed from Peirce's pragmaticist maxim, which amounts to the scientific method applied to conceptual analysis. Gilman applied it to the ruling of society in general: "True democracy is scientific method applied in politics". Peirce's pragmatism states that a possible empirical test gives to any concept its signification: "Consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object" (Peirce, W3.266). Gilman assumed that, applied to the problem of the relationship between superior experts and equal laypeople, it implies that equality should not be postulated as a general principle but considered in its consequences: "But whether verified or falsified, it is not the generalization itself, but the test of it, which is the sum and substance of the principle of equality". In terms very reminiscent of Peirce's pragmatism, Gilman added that: "This is a doctrine of method, not a statement of results. It repeats in modern words the ancient injunction – 'By their fruits ye shall know them'". The latter quote, extracted from Matthew's Gospel, was frequently used by both William James and Charles Peirce, so as to encapsulate the pragmatist maxim, like in the following text by Peirce:

All pragmatists will further agree that their method of ascertaining the meanings of words and concepts is no other than that experimental method by which all the successful sciences (in which number nobody in his senses would include metaphysics) have reached the degrees of certainty that are severally proper to

them today; this experimental method being itself nothing but a particular application of an older logical rule, 'By their fruits ye shall know them'. (Peirce, 1907, CP 5.465,)

Conclusion

Gilman's "The Day of the Expert" provides a pragmatist take on the role of experts in corporations and in society. It also sketches a sort of Peircean view on democracy, which contrasts the more famous developments by Dewey. Gilman supported a mixed participation of experts and managers in boards of directors and ruling institutions. Leaving the power to representatives of economical interests alone or to professional managers would not serve the scientific, content-related, specialized purposes of corporations. But letting experts manage would be equally inauspicious, since they would probably lack general competences of reasoning, like any other layperson. It does not mean that managers should be seen as experts in decisions, anymore than mathematicians or logicians. It has not been proved that training in theoretical reasoning improves the actual reasoning skills, and some empirical data rather seem to show they don't. Therefore, it is unlikely that education can produce experts in (good) reasoning, at least reasoning in situation, for instance when confronting moral dilemmas. To that extend, the possibility of a 'science of administration' should seriously be questioned. Yet, most of our executives were formed in such a supposedly consistent domain. In our days, excellence is sought everywhere but power tends to be transferred to non-experts, which appears as a manifest contradiction. The 'day of the expert' belongs to our past. The more the rules of economy lead the world, the more the word 'excellence' sounds like mere verbiage, dropped as solace for an insuperable loss. A possible solution to the situation could be to follow Gilman's suggestion and give a legal standing to experts, so that "the right based on capacity and the right based on law" do not conflict anymore.

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