CONTINUOUS OPERATIONS IN EUROPE:

FEASIBILITY AND THE EFFECTS OF LEADERSHIP AND TRAINING

by

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"The offensive . . . will be conducted night and day, in any weather, without letup until the enemy is defeated." With these words, Soviet author A. A. Sidorenko summarizes an element of Soviet military doctrine which has significance for the US, although we have only recently begun to appreciate it.[1] Our current "model" of the next European war is based on conflict between Warsaw Pact and NATO forces, with the latter waging a determined and aggressive defense against an enemy vastly superior in personnel, armor, and artillery. Strategy and tactics have been revised to counter this numerical disparity,[2] but seldom has the issue of continuous operations been addressed, beyond acknowledgement that they may well be required. The NATO approach still clings to the notion that there are only a few operations suited for night.[3] Approach marches, withdrawals, river crossings, and reconnaissance are billed as natural nighttime activities. Combat itself is presented as a problem for technology, to be solved by more and better night vision devices. All this is true, of course, but it tends to hide the issue. Night fighting capability is unquestionably necessary for continuous operations, but it alone is just as surely not sufficient.

The extent of this oversight can be gauged by the three- to five-day boundary conditions implicit or explicit in US discussions of continuous operations. This sort of combat, where the major problem lies only in evoking heroic efforts from the troops and equipment on hand, is certainly not what the Soviets mean by continuous operations. Further, REFORGER's division-plus notwithstanding, there is little reason to expect reinforcements in significant strength to arrive from the US in less than three to five weeks, much less three to five days.[4]

To the extent that we look to night vision devices, strategic warning systems, and bigger and better weapons for solutions, we miss the fundamental problem posed by continuous operations: machines can be run without letup; human beings cannot.

In a first effort to explore behavioral implications of continuous operations, the

US Army Medical Research Unit, Europe spent six months observing the day-to-day operations and training of a field artillery battalion in Europe. It was clearly not within the research unit's purview to arrange a continuous round-the-clock field exercise. Instead, we observed the battalion as we found it in a combat training environment, looking for "fault lines" along which such a unit might crack under the stress of that first long battle.

Direct observation was the primary means of collecting data in this study. However, observation was supplemented by informal interviews with troops during breaks, mealtimes, and after-duty hours, and, in selected cases, by formal interviews and questionnaires, as well as analysis of documents, records, and "third party" evaluations such as the Annual General Inspection (AGI). Important battalion events occurring during the period of our observations—May through November 1978—were an AGI; a two-week period during which elements of the battalion were tasked to support a National Guard unit in training at the Grafenwoehr Training Area; and the battalion's own annual two-week training period at Grafenwoehr, culminating in a formal evaluation by group headquarters in July. Also observed were the annual Nuclear Surety Evaluation, Exercise Certain Shield (REFORGER 78), a battalion "ammunition upload," and the battalion's annual Army Training and Evaluation Program (ARTEP) evaluation of its firing batteries at Grafenwoehr. While at the latter site, we were able to observe a National Guard 8-inch battery which was selected for training in Europe by virtue of superior performance in the United States, and a 155-mm howitzer battery specifically tasked to maintain high rates of fire for a 12-hour period. This study also incorporates relevant information gained through visits and correspondence with research colleagues in the US, Great Britain, Norway, Israel, and the Federal Republic of Germany.

FATIGUE AND PERFORMANCE

Nothing we have seen has undermined our laboratory and history-derived assumption that psychological rather than physiological exhaustion is the critical problem in any extended operation. That is, the question concerns not sleeping on the job, but persisting in a job until mental errors destroy the unit. In practice, the performance of decisionmakers such as the commanders and the battery XOs, and those whose jobs involve primarily cognitive skills, such as battalion staff, Fire Direction Center personnel, survey sections, chiefs of firing batteries, and communications equipment operators, will very likely be more susceptible to the stress of continuous high-intensity combat than those with more labor-intensive jobs. Our own observations, particularly during battalion and battery evaluations at Grafenwoehr, and during REFORGER 78, suggest that a high proportion of artillery unit members can and will manage short naps even in conditions which would, *a priori*, be judged as extremely unfavorable in terms of physical comfort and noise level. These naps ought to be encouraged by and at all levels of command. They are, however, constantly undermined by the common myth that sleeping is unmanly or a manifestation of poor discipline. This myth is nowhere more established than among commanders themselves. The latter, although often in enthusiastic agreement about the benefits of sleep, quite often approach sleep like a monk does sex: a harmless enough activity for lesser men, and a good opportunity to exercise willpower and demonstrate superiority through conspicuous self-denial. This portrayal represents, of course, an oversimplification, but it must be emphasized that, unlike physical laborers, whose work *quantity* is decreased by fatigue, decisionmakers and other mental laborers will have their work *quality* degraded. Such degradation, particularly when unrecognized or unacknowledged, clearly places the unit in greater danger.

Data from a variety of other sources support these conclusions. Biochemical studies of a Special Forces "A" Team conducted during the Vietnam conflict found that with one exception, the officers showed higher levels of 17-hydroxycorticosteroid (a

classical indicator of stress) both at rest and in response to an enemy attack on the camp.[5]

The Norwegian Defense Research Establishment has published several studies on the effects of a prolonged state of sleep deprivation and hard physical labor. A recent study reported on a group of 44 cadets of the Royal Norwegian Military Academy participating in a ranger training course demanding the expenditure of 8000 to 10,000 calories per day.[6] One group was given no organized sleep for the five days of the course, while other groups got three and six hours of sleep, respectively, during the early morning hours of the third day. Each morning from 0630 to 0830, formal laboratory testing was conducted, using a variety of tests of both physical and mental functioning. While all the tests showed substantial and progressive erosion, of particular relevance are the findings that a coding test and a command memory test were far and away the most sensitive. The former required the subjects to substitute digits for symbols for five minutes, using a code unknown until the test. In the command memory test, cadets were given two minutes to memorize a standard military message. An hour later, after an especially strenuous physical task, they were asked to write the message. The average scores on both these tasks dipped to 65 percent of pre-course levels, and coding was significantly impaired after only 24 hours into the five-day course (command memory was not tested at 24 hours for some reason). By way of contrast, shooting (grouping at 25 meters) showed only a 10-percent impairment, and that not until the third day of the course.

Britain's Army Personnel Research Establishment has also conducted a number of experiments in the area of continuous operations.[7] These were nine-day tactical defensive exercises carried out by experienced infantry platoons. They were observed and rated continuously by both military and civilian scientists as well as infantry company commanders. In one test, no sleep was scheduled for one platoon, 90 minutes a night for a second platoon, and three hours per night for a third. The aim was to see how many days they would remain in the field (subjects were free to withdraw from the experiment at any time). Military performance (shooting, weapons handling, digging, marching, and patrolling) was assessed throughout, as well as performance on a battery of pencil-and-paper tests of map plotting, coding and decoding, memory, and logical reasoning. Results showed that the platoons became militarily ineffective after approximately three, six, and nine-plus days, respectively. Well-learned and mainly physical tasks were highly resistant to deterioration from lack of sleep, but tasks with a cognitive or vigilance component were markedly susceptible. For example, a platoon of sleep-deprived soldiers was able to maintain its speed of march cross-country, but to its ultimate detriment, because the platoon leader could no longer read his map properly. The formal testing basically confirmed this selective sensitivity, though map-plotting was affected far less adversely than logical reasoning and encoding and decoding. Follow-up studies have confirmed this finding, showing reductions to less than 50 percent of normal performance levels on these tests, with deterioration beginning after only one night without sleep. In addition, the occurrence of visual illusions at night was so common that the study recommended posting sentries in pairs. On the positive side, as little as three to four hours of unbroken sleep per night produced considerable improvement, both in military effectiveness and on the test batteries.

Even more germane are the findings of a joint study by the US Army Research

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Institute of Environmental Medicine and the Walter Reed Army Institute of Research employing the Fire Direction Center (FDC) as a laboratory model for investigating effects of continuous operations.[8] Briefly, five-man FDC teams from the 82d Airborne Division carried out an artillery combat scenario designed to simulate 86 hours of continuous operations (sans actual movements). In fact, no team persisted more than 48 hours before opting to quit, though some were performing adequately at that time. In all cases, however, a striking division of effort appeared as time-on-task increased. Forced-paced activities—for example, fire requests from forward observers and higher headquarters—consistently produced well-trained, orderly, and appropriate reactions, though multiple simultaneous fire missions did cause some difficulties as time wore on; however, it became apparent that the "cost" of this performance was increasing neglect of self-paced activities such as meteorological corrections, replotting targets relocated by survey or precision registrations, keeping the current tactical situation posted, plotting potential targets and no-fire zones, working up data for preplanned fires, updating records and logs, and so forth.

This same distinction between forced-paced and self-paced activities can, of course, be applied to most other sections in a firing battery and to battalion headquarters as well; the ARTEP performance we observed revealed similar patterns. For example, gun sections continued to deliver timely and accurate fire when called upon, but security declined as fatigue set in (e.g. camouflage nets were set slowly or not at all; M60 machine guns were not set up or not manned; wire sections got "hot lines" between FDC and guns in rapidly, but lines to perimeter and the switchboard were omitted). The potential impact of sleep deprivation upon the headquarters and command sections will also be apparent, since good planning ought to be self-paced rather than merely reactive to events.

The foregoing data and observations leave us more convinced than ever that it is those in mentally demanding jobs, rather than physically demanding ones, who are most at risk under conditions of acute sleep deprivation. Moreover, it is precisely these individuals, particularly the commanders, who most frequently believe they are the least vulnerable, if not completely immune.

Another dangerous misconception regarding sleep deprivation is one we have dubbed the "adrenalin theory." In brief, more than a few of our subjects have expressed the view that the increased excitement of actual combat will increase motivation sufficiently to produce all manners of previously unheard-of performances. Both laboratory studies and our observations counter this line of thought. First, although it is true that a moderate increase in arousal often facilitates performance, it is also true that beyond some optimal level, arousal tends to degrade performance. This optimal level depends upon the nature of the task, being much lower for cognitive skills and decisionmaking than heavy labor. A homely analogy exists in professional football, where linemen are allegedly encouraged to raise their arousal level by chemical means, a technique so patently disastrous for a quarterback that it is not even considered. Second, even "continuous" operations will have some lulls, at which time we can expect a parasympathetic rebound. That is, the more intense the arousal during performance, the more powerfully will relaxation and fatigue dominate during lulls. Paratroopers and amphibious personnel often experience such an overwhelming sense of relaxation upon making a safe landing that falling asleep is not unheard-of.[9] Adrenalin is thus a mixed blessing.

NEUROPSYCHIATRIC CASUALTIES

Approximately a half million men were separated from the US Army between the years 1942 and 1945 for "emotional or mental reasons," a rate of about 50 per thousand enlisted males, despite the pre-induction rejection of nearly 1.7 million (94 per 1000) for these same reasons.[10] These statistics do not reflect the considerable

improvement in prevention and treatment that took place by the end of the war, but they also fail to reflect the considerably higher rates among troops actually in combat with the enemy. J. W. Appel reported an annual neuropsychiatric hospitalization rate for divisions in combat in Europe of approximately 250 per 1000, with infantry battalion rates going as high as 1600 to 2000 per 1000 troops per year, for short periods of time.[11] A good rule of thumb seems to be that psychiatric casualties will occur in a ratio of about one for every four wounded in action.

In terms of traditional "combat fatigue," it might be assumed that 10 days is just too short a span to generate significant numbers. On the contrary! Many of the factors associated with high rates are present in current scenarios: initial contact by green troops, intense fire, high casualty rates, retrograde movements, poor communications, and physical fatigue. In fact, the Israeli Defense Forces found that 10 percent of their casualties in the 1973 war (which, incidentally, has served as a model for much recent US planning) were what they termed "combat reactions." These were men who were found wandering around in a daze or sitting quietly doing nothing, unresponsive to events and people around them. This is a low percentage of neuropsychiatric casualties, historically speaking, but this was the first war in which the Israelis had any at all! Post hoc studies of such casualties found that, although there was no "combat reaction personality," those afflicted tended to be older, married soldiers, and that close to 80 percent had been undergoing family or social crises (40 percent having had difficulties with peers or chain of command, 50 percent baby or pregnancy problems, and 23 percent a death in the family).[12] How much higher these figures might have been without the mental health professionals the Israelis routinely assign down through the company level is impossible to say, but observers from the Army Medical Research and Development Command attending a large-scale field exercise recently held at Fort Polk suggest it might be very much higher indeed. Though the observers collected no hard data, a natural experiment emerged, since only one of the divisions participating made concerted efforts, through its mental health specialists, to seek out and help resolve troop concerns about dependent problems (ranging from physical safety to paying the phone bill) arising while the men were in the field. This division sent home for domestic problems only one-tenth the number sent back by their "opponents," the 82d Airborne Division.

Although the question of "sending people back" becomes academic in the event of war, concerns in soldiers' minds about dependent care can hardly be eliminated by fiat, as the Republic of Vietnam learned in what turned out to be the final massive invasion by North Vietnam. The number of dependents in the potential "war zone" of Central Europe is now greater than 350,000, and current plans for noncombatant evacuation operations were remarkable for their lack of credibility even before the recent fiasco in Iran. Soldiers tend to be ambivalent toward the presence of their wives and families in the theater. On one hand, they want their families there in peacetime; on the other, they recognize that in the event of sudden hostilities the danger to their families would pose a severe psychological distraction. The most common response of soldiers asked was, "Are you kidding? I don't know what I'd do if it came to that!" We didn't find it hard to imagine what they might do after witnessing an E-6 slip home from REFORGER because his wife could not get to the commissary without him.

On the basis of the frequent difficulty we encountered convincing commanders and supervisors at all levels that dependents' adjustment problems did, in fact, have something to do with continuous combat operations, we suspect that data such as that presented above needs much wider dissemination than it has received. Psychiatric casualties are too important to be left to psychiatrists.

TRAINING AND LEADERSHIP

Despite the inherent limitation on live-fire training imposed by the small number of training sites suitable for field artillery in

West Germany, the units observed showed a high level of proficiency in their basic tasks. This should not be construed to mean that training is currently optimal, however, or even adequate for continuous operations.

Apart from a need for improvements in a few specific areas, we were disturbed most by the widespread tendency (unquestionably produced by pressures from above) of units to train for the next evaluation rather than for combat. While evaluation is a necessary concomitant of training, the same strained application of cost-effectiveness techniques which enshrined the body count in Vietnam now acts to stifle the very thing it is designed to measure. An extreme example is the expectation that a unit's vehicles achieve "zero defects." The only way to achieve such a goal is not to use them! Pressure for zero defects, in fact, produces a perverse sort of cross-training in which an altogether natural tendency of superiors to assume more and more of the duties of those under them provides a superficially acceptable quick-fix, but is actually destructive of team effectiveness. In addition, it soon leads to "burn-out" of intelligent, caring leaders who cannot do the jobs of two or three men indefinitely.

The importance of real cross-training to continuous operations, however, cannot be overemphasized. We consider it likely that entire batteries will be rendered ineffective by the loss from wounds or exhaustion of only a handful of men because they have literally become indispensable by design or default. It will be impossible to survive extended operations if a unit insists upon maintaining the best man for the job in that position at all times. This tendency appears to us to be most common within the Fire Direction Center and on the gun crews. We observed a Field Artillery Digital Automatic Computer (FADAC) operator, for example, drag his crutches and freshly cast leg into the back of an armored personnel carrier with five other soldiers and struggle through a 36-hour battalion ARTEP "because he's far and away the best FADAC operator in the battalion."

None of this is news to any commander, so why should cross-training ever be slighted? The answer lies in current evaluation philosophy and techniques under which a commander is often well-advised to train one man to a high level of proficiency on a task rather than several men to a reasonably high level, even though it is apparent to all that the second course is more appropriate to the demands of combat. We witnessed, for example, the selection as leader of the special weapons convoy for the battalion nuclear surety evaluation the one officer in the battalion who had done it before. This selection took place over the protests of two other battery commanders who argued that they should at least undergo the same training and rehearsal even if they did not formally represent the battalion for evaluation. The point here is not to hold up a particular commander or his staff for criticism. On the contrary, here and throughout the entire period of our study, this commander and his staff responded to the contingencies, the written and unwritten rules of the game, as any sensible person would. The outcome was often not sensible, however, because the present system of rewards in the Army focuses on short-term achievement to such an extent that it not only neglects long-term goals, but often encourages action directly counter to them.

Consider, for example, the experience of a young executive officer from a corps 8-inch battery who chatted with me while serving as a REFORGER umpire. During their most recent field training, he explained, they had undertaken an eight-day exercise of their own devising in preparation for their battalion ARTEP:

> Everyone knows you can make it in 36 hours. You may be screwed up by the time you finish, but you can do it. Eight days is something else, though—so we knew we'd have to devise some sort of shift schedule. It was tough at first, but by the end, we had it down pretty good. In fact, we were so pleased that when it came time for the ARTEP, which we knew would only be 36 hours at the most, we figured, 'Hell, why not do it the way we'd have to do it in real combat, since we've got a system?' What do

you suppose happens? We get gigged for 'lack of enthusiasm,' 'not going all out,' and so forth when the evaluators see a bunch of people asleep.

As a start at reform, elimination of the adversary relationship between tester and tested, and the disproportionate importance attached to very specific and highly predictable tests, would allow for much more imaginative and combat-relevant testing, leading in turn to more rounded, combat-oriented, and morale-boosting training.

In terms of actual leader behavior during continuous operations, both the classic surveys of S. A. Stouffer[13] and the recent experimental studies of the British point to the need for a friendly and relaxed leadership style when dealing with tired soldiers. During Operation Early Call, for example, NCOs reported that quiet reminders and exhortations were more effective than orders, particularly late in the exercise. Tired soldiers tended toward passivity and docility rather than aggressiveness, toward resignation rather than resistance. This tendency held for leaders as well as followers, of course. In perfect harmony with the distinction made earlier between self-paced and forced-paced activities, a few of the junior NCOs abdicated their positions of leadership in favor of personal survival and comfort.[14]

Leaders of small groups during continuous operations may also find helpful several findings from studies of civilian organizations performing under high task load:[15]

- There will be greater deviation from standard procedures and doctrine.
- There will be increased emphasis on priorities (cf. self- versus forced-paced tasks).
- Cross-checking and spot-checking will decrease.
- Communications within the working group will decrease, as will record keeping.
- Communications with "outside" groups and individuals will increase.
- Decisionmaking initially centered on the formal leader will tend to be transferred to the group member with the greatest knowledge and experience if he is not the formal leader. If he is the formal leader, he will be relied on more and more for advice and decisions.
- Interpersonal conflict will decrease (though positive interactions may not increase).
- Attempts to briefly "leave the scene," physically or psychologically, will increase.

It thus becomes clear that the challenges to leaders in the prolonged high-pressure environment of continuous operations are considerable.

Our observations have underlined several aspects of the current leadership "climate" that unquestionably impair the ability of today's Army to perform not only in continuous operations, but indeed in any kind of operations. Foremost among these is the strongly ingrained and widely held belief that mistakes are neither expected nor tolerated. The practical consequences of believing that one's career is at stake every minute of every day are parallel to those of the bodycount mentality referred to earlier. As managers, we find it difficult to measure "taking care of one's men," "esprit de corps," "individual morale," and even "readiness," so instead we measure various quantifiable failings, on the assumption that lack of such failings implies health in the unmeasurable areas. This assumption is simply not true: having few deserters is *not* having high morale, any more than lack of serious illness means being in good shape.

Junior officers and senior NCOs, particularly, see their task as avoiding mistakes rather than learning and growing constantly by trial and error. Leadership cannot be learned merely by teaching our officer corps to concentrate on avoiding easily measured mistakes. For example, it is not "leadership" to cannibalize vehicles awaiting parts to make sure that those to be inspected are letter perfect, or to assure that the installation dining facility "belongs" to a unit not getting its AGI. In fact, this management philosophy, borrowed from industry and commerce (where at least there is a clear-cut, dollar-and-cents product to serve as a counter-balancing positive goal), exerts great pressure to falsify reports, by

omission as well as commission, and stifles initiative, trust, and honest communication. It intimidates commanders and leaders at all levels into usurping duties of subordinates (to the consternation and long-term detriment of both) or shunting more and more work to the ever-dwindling number of "reliable" workers, who finally burn out. The management approach, as opposed to leadership, is also at least in part responsible for the flowering of what might be termed "the hardware store" approach to discipline and training problems: "I get no reward for the extra efforts involved in motivating or training these guys, so why not send them back like any other defective part, and get a brand new one?"

It is no wonder, in such a climate, that officers are ambivalent about that traditionally and theoretically most honored of positions: commander. They see it as something to be endured for the sake of one's career rather than a highlight of that career. Those who have no taste or talent for command feel they must accept it, even seek it, to "remain competitive," while those who are good at it feel they too must move on to other jobs before suffering one fatal mistake and withering on the promotion vine.

MORALE AND SOCIAL SUPPORT SYSTEMS

The "Year of the Soldier" in Europe has quite properly called attention to a myriad of soldier personal problems and resulted in many much-needed corrections. The continued loss of first-term troops at the rate of a battalion a month suggests, however, that it is a difficult job indeed to raise soldier morale with the purely pragmatic problem-solving approach. One reason this is true may be the lack of clarity about the sources of unhappiness, specifically, the failure to distinguish individual or personal morale, which does indeed depend on things like good chow, clean clothes, recreational facilities, and so forth, from group or unit morale, which is a product of membership in a respected unit with confidence in and respect for comrades and leaders.[16] It is the latter type of morale that history suggests is crucial to combat performance.[17] Furthermore, it is important for peacetime performance as well. As L. H. Ingraham puts it:

> Small group membership is crucial to the day-to-day experience of the soldier. He is forced to manage large blocks of time away from his home, family, and friends. That time needs to be filled in the company of other people, as he does not thrive in isolation.[18]

Experiences in past wars as well as in industrial settings has made it obvious that there is much to be gained if the young barracks dweller can find social bonding within his own military work group. There, the young soldier can find a social support group for himself, generated by interpersonal contacts and activities within the same limited and diverse group of other transients who comprise his work group. He does not have much time to achieve group identity, owing to transfers and rotations, nor does he typically possess sophisticated social skills or leisure-time habits. Unfortunately, drug and alcohol use become strong temptations, offering a variety of distinct shared activites and a unique group history that can create a sense of comradeship literally overnight and effortlessly. Perhaps just as unfortunately, the social networks thus formed almost never include all members of a work group, and hardly ever include any significant mixture of ranks. The attitude of distrust which comes to pervade relations between users and non-users is of course maladaptive, and the hypocrisy of often hard-drinking supervisors pursuing users of other drugs is not lost on unit members. Also obvious to all is the seeming impotence of the Army, defeated daily by its most junior personnel in efforts to suppress illicit drug use. Thus, respect for and confidence in the chain of command is not so subtly undermined.

What I am suggesting is that drug use has flourished in the vacuum created by the Army's continuing transformation from "total institution" to "just another job." Very necessary for combat, and in garrison as

well, is a sense of belonging, but belonging to a group that includes both single and married soldiers, junior and senior enlisted men and officers, and perhaps even families, sweethearts, and friends.

Such informal social bonding cannot be accomplished by orders and directives. It must be built as a by-product of activities which fill large blocks of time, involve minimal skill (so that anyone can participate), and comprise intelligent mixes of work and play, duty and recreation. Such an enlarged "family" setting would provide alternative social alliances for soldiers. These activities must be seen not as a troop welfare program, but as an essential part of the unit's mission, a part which may or may not improve readiness by cutting into drug and alcohol abuse, but which will certainly provide the unit with the strongest available insurance against the stress of prolonged combat—loyalty to one another.

CONCLUSIONS

Though this report does not cover all the implications of continuous combat for US planners and policymakers, even for the human factors area alone, it does address four of the most important. We may recapitulate these areas as first considerations for any commander wishing to attack the problem:

- *Sleep for leaders* is by far the most critical factor, owing to the high sensitivity of decisionmaking and other cognitive tasks to fatigue. At present, this fact is simply unacceptable to the vast majority of leaders at battalion and lower levels, at least with regard to themselves.
- *Cross-training* is essential at all levels, command included, if any kind of shift work is going to be possible, or if the unit is going to survive the inevitable losses of key personnel. Neither cross-training nor combat leader development is possible in a "zero defects" environment.
- *Worries about dependents' care* will play a large role in staying power.
- *Unit cohesion*, the extent to which the members see themselves as a unit or team in which teammates cannot let a buddy down, will be a crucial determinant of endurance.

Neither the problem of continuous combat operations nor its solutions are seriously addressed within our Army's present doctrine or training. It is time that we turn our best thinking in this direction.

NOTES

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