
11 / A Case of Lead Poisoning from Folk Remedies in Mexican American Communities

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Problem and Client

Three sources of lead poisoning most commonly affect children in the United States: eating lead-based paint chips, living and playing near a smelter where even the dust has a high lead content, and eating off pottery with an improperly treated lead glaze. This chapter describes the discovery of a fourth source of lead poisoning, one resulting from folk medicine practices in Mexican American communities.

In summer 1981, a team of emergency room health professionals in Los Angeles discovered an unusual case of lead poisoning. They treated a child with classic symptoms of heavy metal poisoning. When they pumped the child's stomach, they found a bright orange powder. Laboratory analysis of the powder determined that it was lead tetroxide (PbO_4) with an elemental lead content of more than 90 percent. After being strenuously questioned, the child's mother admitted giving the child a powdered remedy called *azarcon*. She also said that the powder was used to treat a folk illness called *empacho*, which translates roughly as a combination of indigestion and constipation. *Empacho* is believed by people who treat it to be caused by a bolus of food sticking to the intestinal wall. Unfortunately, this case was not handled in a culturally sensitive way, and the child was not brought back for follow-up. However, a general public health alert was sent out (see MMWR 1981, 1982; Trotter et al. 1984).

As a result of the public health alert, a second case of lead poisoning from *azarcon* was discovered in Greeley, Colorado, by a nurse from the Sunrise Health Clinic who was culturally sensitive to the parents' claim

that the child was not eating paint (the most commonly suspected cause). Having read about the azarcon case in Los Angeles, the nurse asked the mother if she was treating the child for empacho, and, when she answered yes, asked if the mother was using azarcon as a remedy. Analysis of the powder that the mother was keeping with the family's medicines confirmed that it was lead tetroxide.

Until this time, the use of lead as a home remedy had been assumed to occur only in isolated cases, and no anthropological input had been sought. However, additional questioning by the Los Angeles County Health Department and by individuals at the Sunrise Community Health Center turned up apparent widespread knowledge of azarcon in both Mexican American communities. The U.S. Public Health Service decided at this point that an anthropologist's study of this potential problem would be useful.

About six months after the azarcon problem was discovered, I was called by a friend who worked in the Region VI office for the Public Health Service (PHS) in Dallas. He asked me if I had ever heard of a remedy called azarcon while I was doing my research on Mexican American folk medicine. I had not. He then told me about the cases found in Los Angeles and Greeley and asked me to look for azarcon in south Texas.

I searched all the herb shops in four towns, including the one in the market in Reynosa, Mexico, and talked with *curanderos* (folk healers) living on the U.S.-Mexican border. I did not find azarcon nor did I find anyone who knew what it was. I reported this fact to my friend, and we both were relieved that the problem seemed to be confined to the western United States. Not long after I received a packet of information from the Los Angeles County Health Department, which had conducted a small survey on azarcon. Among other findings they had discovered some alternate names for the preparation. I went back to the herb shops to look for azarcon under its alternate names because the common names of remedies often change drastically from region to region.

The most important alternate name turned out to be *greta*. When I asked for *greta* in Texas I was sold a heavy yellow powder that, when analyzed, was found to be lead oxide (PbO) with an elemental lead content of approximately 90 percent. The shop owners told me that *greta* was used to treat empacho. So we now had confirmation that two related lead-based remedies were being used to treat empacho in Mexican American communities. In fact, a wholesale distributor in Texas, which was also selling over 200 other remedies to retail outlets, was supplying *greta* to more than 120 herb shops (*yerberias*). This finding drastically shaped both the scope and the content of the health education project that we started soon after this discovery. Because of the geographical

scope of the problem and the multiple compounds involved, in the end six interacting clients utilized applied anthropology services to deal with the threat of greta and azarcon.

My first client was the Region VI Office of PHS. As previously described, it sponsored my initial narrowly focused ethnographic study to find azarcon—before our knowledge of greta. The second client group that requested my help was the task force formed to create and implement a health education project directed at eliminating the use of azarcon in Mexican American communities in Colorado and California. The project was sponsored through a federally funded migrant and community health center, the Sunrise Health Center, but was funded by the foundation of a private corporation. Our objective was to develop culturally sensitive health awareness materials that would reduce the risk of people using azarcon without attacking or denigrating the folk medical system. We knew that attacks on folk beliefs would produce strong resistance to the whole campaign and make people ignore our message. I was asked to participate because of my research on Mexican American folk medicine, in the hopes that my ethnographic data could be used to help design a health awareness campaign that would encourage a switch to non-poisonous remedies.

The technique behind this approach has been successfully used by all major advertising agencies for decades: It is relatively easy to get people to switch from one product to another when both products perform the same function. It is difficult or impossible to get people to stop using a product for which there is a felt need, regardless of the known potential for harm for that product, unless one provides an acceptable alternative. Thus, it is easy to get a smoker to switch from Camel filters to Winstons but very hard to get that person to stop smoking altogether. So we decided that we would attempt to give people the alternative of switching from greta or azarcon to another remedy for empacho, such as *te de manzanilla* (chamomile), known to be harmless, rather than trying to get people to stop treating empacho altogether.

The discovery of greta use in Texas and Mexico produced a third client. The Food and Drug Administration (FDA) decided it needed basic ethnographic information on the use of greta. It wanted to know who used greta, what it was used for, how it was used, and where it could be purchased. Lead oxide is most commonly used as an industrial compound (as an adherent in marine paints) and as a color component in the paint used to make the "no passing" stripes on U.S. highways. It has never been considered either a food additive or a potential drug. Therefore, the FDA needed verifiable data that the compound was being used as a "drug." The FDA asked me to conduct a short, thorough ethnography in the herb shops where I had found the greta. This study

included collecting samples and interviewing the owners (and a number of clients who wandered in to buy other remedies) about the ways that greta was used, what it was used to treat, how it was prepared, and the size of dose given for children and adults. These data allowed the FDA to determine that greta was a food additive and enabled it to exercise its authority to issue a Class I recall to ban the sale of these lead compounds as remedies. The information I gathered was important because herbal remedies do not normally fall under the jurisdiction of the FDA,¹ except in terms of the cleanliness requirements surrounding their packaging.

The discovery of greta in Texas caused the regional office of Health and Human Services (HHS) to request my assistance in creating and executing a survey along the U.S./Mexican border to discover how much knowledge people had about greta and azarcon and how many people used them. HHS felt that the use might be much more extensive than was suggested by the relatively small number of poisonings discovered in clinics. The survey indicated that as many as 10 percent of the Mexican American households along the border had at one time used greta or azarcon. The survey also turned up several other potentially toxic compounds that included mercury and laundry bluing (Trotter 1985).

The fifth group to request data was the Hidalgo County Health Care Corporation, a local migrant clinic. It asked for a survey to determine the level of greta and azarcon use in the local population compared with their clinic population. The HHS regional survey had only sampled clinic populations. The Hidalgo County research project involved simultaneously sampling at the clinics and in the communities from which the clinic population is derived. Over a two-week period, a stratified random sample of informants at the clinic sites were given a questionnaire designed for the HHS regional survey. At the same time, a random stratified block cluster sample of households in the catchment communities were administered the same questionnaire. The results indicated that no significant difference existed between the two populations in terms of their knowledge about and use of greta and azarcon. The data showed trends that suggested that the clinic populations were more likely to treat folk illnesses than was the population at large.

My final client was the Migrant Health Service, a division of the PHS. The Migrant Health Service requested consultation on the necessity of a lead initiative for the entire United States, based on the results of the ethnographic and survey research conducted for other groups involved in the overall project. In the end, it was decided that a nationwide lead initiative was not necessary. Instead, the areas of high greta and azarcon

use were targeted for a special initiative and received special notification of the problem.

Process and Players

The wide geographical distribution of greta and azarcon use, their employment as traditional remedies, and their inclusion in the treatment of a folk illness made this problem ideal for intervention by an anthropologist. Among other qualities, we tend to have a high ambiguity quotient: We tolerate poorly defined research objectives and virtually boundary-free problems that must be analyzed and solved simultaneously. The fact that the project rapidly developed a multiple-client base also made it very suitable for applied anthropology rather than for another social science. Anthropologists are often called upon to serve diverse, even conflicting, roles as culturebrokers. Multiple clients are no different from multiple community interest groups. Serving as a go-between in one setting develops the skills for doing so in any other setting.

From this perspective, my participation was requested by various clients because medical anthropologists have become known for being comfortable and competent in dealing with the types of issues presented by the greta and azarcon problem (problems that do not fit existing, well-defined categories or public health procedures). I did not become involved through a disguised or accidental process; my expertise was specifically sought because of the clients' recognition that they wanted a particular set of skills. This was particularly clear for the group creating the health education program. It deliberately sought an anthropologist with current knowledge about the Mexican American folk medical system. I was chosen because several people in the group had either read articles I had written or had heard me speak publicly about folk medicine. Likewise the migrant health program of PHS wanted someone with the same knowledge base, and I had previously worked with several of the individuals there.

My role evolved into a combination of researcher, consultant, communication bridge, and developer of program elements. My goal was to help create a culturally sensitive and effective method for reducing the use of these two folk remedies without interfering with the overall use of folk medicine. Another of my critical roles was that of information broker between the various client groups, some of which had not previously been in communication. Some of these groups had severe organizational barriers to communication with one another. One such barrier was simply organizational distance; the Washington-based migrant health officials only dealt with the local programs within certain contexts, such as regional and national meetings, or when a problem occurred

in the operation of a clinic. I provided a good temporary (higher intensity) communication bridge to facilitate the exchange of information for this project. In the same way, the PHS and FDA had little need for contact, except for the temporary mutual need to solve different aspects of the greta/azarcon problem. But each of these groups found it useful to have the information available to, or available from, the others.

My final role was that of a scholar to publish the results of the study. The group developing the health education project wanted my findings published in order to disseminate the information about greta and azarcon as widely as possible. PHS wanted my results because it was finding it more and more difficult to put money into projects on the sole basis of an emotional appeal. The federal government (and increasing numbers of state and local governments) are reluctant to recognize "problems" that are not sufficiently documented and shown to be "real." One of the favored forms of documentation is publication in scientific journals. So following the normal process of publishing the results of an investigation allows an agency or organization to demonstrate a need for a specific program. The agency can support a request for a short-term (emergency) effort or can request a future increase in funds (or at least the maintenance of their prior funding levels). Scholarly documentation of problems and program effectiveness is particularly useful for programs that receive federal funds on an annual basis. When the preliminary results of my ethnographic research were published in *Medical Anthropology Quarterly* (Trotter et al. 1984), the officials in the migrant health program felt they could reasonably justify the expenditure of funds to deal with the part of the greta and azarcon problem that affected their clinics.

Publication can provide other long-term benefits. Naming members of the nonscholar staff as co-authors of publications not only gives them appropriate recognition for their contributions but also can increase the opportunities for future funding. Sharing a publication and its visibility tends to be excellent public relations. Clients can use the prestige of being an author in the development of their own careers. This tends to improve the chances of the anthropologist securing additional consultant work from that source. It produces a basic win/win situation.

Results and Evaluation

Because this project involved several clients, it also had multiple results and multiple levels of outcomes. The Sunrise Clinic health education project resulted in considerable media exposure on the existence and dangers of greta and azarcon. This exposure included radio public service announcements broadcast on Spanish radio stations, a special television

program aired in Los Angeles county, and an information packet sent to migrant clinics. These informational campaigns contained the suggestion that people switch to other remedies because greta and azarcon were hazardous.

The other major accomplishment of the Sunrise project was the production and distribution of a poster designed by Mexican American commercial design students at Pan American University. The students were provided an in-depth briefing on the problem and our investigation; then were turned loose to create a culturally appropriate poster. A small cash prize was given to the student with the best design. Twenty posters were completed and turned over to a group of Mexican American clients and staff at the clinic to judge for most effective design. The final poster, which combines elements in two of the submissions, uses the culturally emotive symbol of La Meurte (a skeleton) to warn of the dangers of the use of greta and azarcon. The dominant impact of the poster is visual/emotional—to trigger the client into asking the clinic staff about greta and azarcon. The group felt that too many words would dilute the impact of the poster, so we did not attempt to incorporate the theme of product switch into the design. Posters with this design have been placed in over 5,000 clinics and other public access sites in each state with a concentration of Mexican Americans.²

The success of the overall campaign is demonstrated by the fact that some two years after the project was completed, interest had died down, and both greta and azarcon were hard to find in the United States. Another measure of the campaign's lasting success is illustrated by the doctor in El Paso who treated a child with classic lead poisoning symptoms. Not only did he recognize the probable cause of the symptoms (lead poisoning has such common symptoms that it is rarely suspected), he immediately asked the mother if the child was being treated with greta or azarcon. It turned out to be greta, and the child was immediately treated, with no serious long-term problems. The doctor was very happy that he had caught a problem that others might have missed, and we were pleased to discover that the project had at least a qualitative measure of success. Based on anecdotal information, the project appears to have had an important effect on public knowledge about these remedies and has reduced their use by some degree. However, no scientific effort was made to determine exactly how much change has occurred. Even with the increased information, these compounds will continue to be used regardless of the effectiveness of the campaign. Knowledge does not always drive behavior, as is evident in all the results of nonsmoking campaigns.

The work completed for the FDA was successful within the parameters set by the client. The data were sufficient to allow the agency to determine

that the consumption of greta and azarcon fell within their jurisdiction, and it was able to successfully conduct a recall. Additionally, the data and the agency's recognition of its validity allow it to deal with future incidences of the sale of these two compounds as home remedies. This is a positive benefit because reuse of the compound is virtually assured by the fact that Mexico is the primary source of folk knowledge about the use of greta and azarcon and the source of the compounds themselves. Unfortunately, the public health sector in Mexico has not been able to devote many resources to this particular problem.

My work for the regional office of HHS resulted in data that allowed policy to be set and lead screening procedures to be amended at both national and regional levels to deal with this new source of lead poisoning. The basic policies dictated the creation of the new lead protocols. The agency pinpointed potential areas of high usage of the compounds and recommended cost-effective lead screening programs to be undertaken at selected sites. The screening is accomplished by drawing small samples of blood and testing it chemically for the effects or presence of lead. Because of the survey and accompanying ethnographic data the lead screening protocols for migrant and public health services were modified to include ethnomedical sources of poisoning, such as greta and azarcon. Clinics were alerted to this source, and a growing number of cases have subsequently been discovered that would have otherwise been overlooked.

The data provided to HHS also permitted cost avoidances. Just after the discovery of greta and azarcon there was a rush to do something, which included a preliminary decision to buy some very expensive equipment for a large number of clinics. However, the data allowed a more cost effective decision to be made: to only do lead screening in those areas where there was a demonstrated risk. This approach avoided the purchase of equipment that would have been misused or not used at all because no funds were available to train clinic staffs to use these complex instruments after they were purchased.

The survey of greta and azarcon use (Trotter 1985) turned out to be an excellent educational and informational device. It was conducted at thirty migrant and public health clinics in Texas, New Mexico, and Arizona. As a result of the open-ended ethnographic structuring of the survey instrument, several other potentially toxic compounds, with regional but not universal usage, were also discovered. This finding alerted the local clinics both to the current use of home treatments of illnesses in their area and to some of the specific health education needs of their clients. In my opinion, the education benefits of conducting this type of survey have an untapped potential as an educational device for health care service providers.

To disperse the data as widely and rapidly as possible, four different articles on greta and azarcon were submitted to a variety of journals. Each article was targeted for a particular audience. The most important audiences were thought to be health professionals, medical anthropologists, public health personnel, and an international pharmacological audience. Each audience needed to know about the data and had an opportunity to help solve the problem of lead poisoning caused by folk remedies. However, this process of multiple submissions conflicts directly with the practice of avoiding prior publication.

The Hidalgo County Health Care Corporation was provided with reports showing that greta and azarcon use was comparable between their clinic and catchment populations. These data were also passed along to the regional and national offices of PHS. In this case the client used the data to create priorities for the next funding cycle. Each funding request requires goals and priorities, and better funding opportunities exist if the clinic demonstrates changing as well as expanding needs and services, especially in the area of patient education. The data allowed it to successfully compete for funding for its patient education goals by demonstrating a need for further health education on home remedies.

Perhaps the most important overall result of this project was the increased awareness of the utility of anthropology in solving culturally related health care problems in at least one segment of the medical care delivery system. For many years anthropologists have been saying that knowledge of folk medicine was important to the delivery of health care. But the only examples of how such knowledge was useful were couched in terms of "better rapport" with patients, "potentially reducing recidivism," or were tied to the "interface between culture and psychological processes." Patient rapport is an abominably low priority for practicing physicians and for most health clinics that are experiencing a patient overload. Likewise the cultural/psychological aspect has low prestige and is of interest to a small group of practitioners but not to the larger group dealing with physical medicine.

Now anthropologists are becoming visible to the greater part of medicine. Our discovery of the use of greta and azarcon and the subsequent discoveries that similar remedies are causing lead poisoning in Hmong, Saudi Arabian, and Chinese communities have finally demonstrated a clear link between anthropological research and the dominant biophysical side of modern medicine. Anthropological knowledge, research methods, and theoretical orientations are finally being used to solve epidemiological problems overlooked by the established disciplines. For some of our potential clients, this approach, for the first time, makes anthropology a potentially valuable source for consultation and for funding.

A project is only half successful, regardless of its results, if it does not produce additional opportunities for anthropologists to practice anthropology. These serendipitous results can be as simple as further work for the same client or as important as the development of new theories for the discipline. Yet rarely are these spin-offs mentioned or considered an important aspect of anthropological praxis. Even when a project has clear closure (rare for many of the types of applied problems tackled by anthropologists), the process of solving the problem should set up personal and professional relationships that carry beyond that temporary closure. Regardless of the products they produce, successful applied scientists are process oriented; they are constantly moving from one point on a continuum to the next.

The additional opportunities created by the greta and azarcon problem may have more long-lasting effects on the cross-cultural delivery of health care in the United States than the original projects had. The first spin-off was an invitation to participate in a program review for the Migrant Health Services division of PHS in Washington, D.C. The program review brought together a group of experts from around the United States to review, revise, and set new policies for the delivery of health care services in all migrant health clinics in the United States. The policies that were adopted are strongly cross cultural. They include the development of a Public Health Service Corps provider orientation package that specifically addresses cultural sensitivity, basic anthropological concepts of culture, and awareness of the qualitative aspects of migrant lifestyles, health beliefs, and medical needs. I am in the process of developing this package. Other policies and goals include statements on program coordination, continuity of care, information needs (e.g., research), and services. All have been shaped by the participation of anthropologists in the policy-making body.

Additionally, Indiana Health Centers, Inc., a private, nonprofit corporation that runs the migrant health clinics in Indiana, asked me to spend a week as a consultant for its program. The primary purpose of the consultation was to conduct public and clinic seminars on ethnomedicine and its importance to the delivery of health care to Mexican Americans. A latent purpose was to legitimize the use of culturally appropriate health services and to integrate them into the scientific medical system. One indication that the process worked is the clinic's decision to incorporate four of the most common Mexican American folk illnesses into their diagnostic system, which includes a computer coding and retrieval system. At the end of the year, the clinics will use these to set goals, determine funding and educational needs, and determine policy for the program, along with all other diagnostic data derived from their computer system.

I was also invited by the Pennsylvania Department of Education, Migrant Education Division, to participate in its Project HAPPIER (Health Awareness Patterns Preventing Illness and Encouraging Responsibility). Project HAPPIER, which has a national scope, is funded through discretionary (143c) funds from the Office of the Secretary of Education. The objective of the project was to provide a major health resource guide and the data necessary to target health education in migrant clinics and for migrant educators, nationwide. My initial role was to conduct an analysis of national migrant health education needs, including an eight-state survey of migrant health beliefs and health education needs, as seen from the perspective of the migrants themselves. Although the survey provided excellent information, several important cultural groups were not well represented. Therefore, the following year I helped conduct a separate needs assessment in Puerto Rico to gather data on one of the underrepresented groups. The goals of the surveys were to improve our knowledge about migrant health status in all three migrant streams and to provide information that would allow the states and Puerto Rico to offer migrant children sufficient health education to improve the health status of the current and the next migrant generation. The preliminary results of the study indicate that migrants both want and need health education. This finding points up the possibility of exploring a number of areas for research and program development (spin-offs from spin-offs).

Other opportunities that resulted from the original project included the more traditional requests for speaking engagements, lectures, and so on. These occasions afforded visibility that created new project opportunities and acted as a source of income. In most academic settings these activities also count toward merit and promotion points.

Although it is very important to direct one's best effort toward each project, I feel that the best applied anthropologists also follow what I call the "basic fission theory of anthropological praxis." Each project undertaken by an applied anthropologist should produce at least four others (up to the capacity, skill, and time commitment available to the individual anthropologist). One indicator of success in anthropological praxis is a continued demand for the services offered; it is easiest to generate this demand by current success. An anthropologist should look for spin-offs during a project, not just after it is completed.

The Anthropological Difference

I believe that the anthropological difference I added to the greta/azarcon project comes from the training that all anthropologists receive. It includes our strong focus on culture combined with our willingness to innovate,

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to look for explanations in areas that have been neglected by other investigators. The difference is not so much a part of anthropological theory and methods as it is a part of the personal orientation many of us have and that we try to pass along to others. For example, the health officials who originally investigated the case of lead poisoning in Greeley assumed that the little girl could only have contracted lead poisoning in the same way all other children get lead poisoning—from the environment.³ In her case, the only accessible source of lead was a fence some 200 yards from her house. Although her parents insisted that she never played near that fence, they were ignored until the child had gone through chelation therapy and, in a follow-up screening, was determined to have re-elevated blood lead levels without access to the fence. Then the publicity on the California case caused a culturally sensitive worker (who had been exposed to transcultural nursing concepts) to ask about azarcon, and the case was solved.

Another anthropological contribution to this project was in the design and administration of the research requested by the clients. The methodological contributions an anthropologist can make to a project may be as important or even more important to the client than his or her contributions of theory. It is relatively easy to find someone who has a theoretical explanation for known behavior; it is also easy to find someone who can administer surveys. It is much harder to find someone who can combine ethnographic data collection and theory grounded in real behavior with survey methodology that can determine the scope of a behavior. These projects demanded both types of expertise. I had to discover both the basic patterns of and reasons for the continued use of home remedies in an urban-industrial society and a cultural context within which the educational and intervention process could take place. At the same time, I had the vitally important task of discovering how widespread the use of these remedies had become and if other hazardous remedies were being used to treat the same folk illness. A combination of ethnography and survey accomplished these goals.

The final area of anthropological contribution was in the design of the educational material and the programmatic responses to the problem of greta and azarcon. The major contribution there was to ensure that the materials used or developed were culturally appropriate rather than trying to force inappropriate change on people who would resent it, making the effort useless in the long run.

In some ways this cluster of projects indicates a potential new era for anthropology in health-related fields. In these instances the services of an anthropologist were deliberately sought because of the clients' sophisticated knowledge of the type of services they needed and the exact type of expertise they wanted. They needed descriptive ethnographic

data to determine a method in which to produce a product switch from one remedy to other, nontoxic ones. In addition they needed a survey built on a solid ethnographic base that did not presume a closed field of knowledge about the subject. More and more of today's anthropologists are equally comfortable with quantitative and qualitative methods of data collection. This combination of research methods is actually stronger than either pure ethnography or pure statistical analysis, but it requires a much more methodologically sophisticated researcher. In some ways, the flexibility of approach—an eclectic orientation to methodology and analysis—has always marked the anthropological difference and may herald a subtle but real advantage not only for anthropological praxis but also for the future employment of anthropologists in many industries. If, as many claim, we are now in an information-driven age, anthropologists should have an advantage in the information service market, given the importance or centrality of communications research and information handling in the history of anthropology.

Notes

1. Most of the people buying and selling greta and azarcon believe they are herbal compounds, probably because the overwhelming majority of Mexican American home remedies are botanicals.

2. Other Hispanic groups were not targeted for this campaign. A broad search among anthropologists working with other Hispanic populations in the United States indicated that the two compounds were not present in their ethnomedical pharmacopoeias.

3. Two traditional sources of lead poisoning are the consumption of lead paint chips, primarily by children living in dilapidated urban areas, and occupational exposure to high concentrations of lead by workers and children of workers in high lead use industries, such as battery manufacturing. The third source is environmental pollution. The most common victims of this type of poisoning are children whose normal hand-to-mouth activities give them an overdose of lead from playing on soil with a high lead content (such as that near heavily traveled roads or industries such as smelters that have high lead emission levels). Epidemiological investigations are conducted when a child or adult is detected as having high blood lead levels. These investigations invariably concentrate on discovering which of these sources caused the problem.

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