

1: Listeriosis Outbreaks and Associated Food Vehicles, United States, "â€"

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Severe winds, in excess of 50 knots 25 m s^{-1} , brought widespread damage across the mid Mississippi valley on the mornings of 11 April and 28 April. These severe winds were unusual and unexpected as they trailed behind stratiform precipitation areas where severe weather is not normally expected. The wake low on 11 April appeared to be the result of strong adiabatic warming due to dry air subsidence while the wake low on 28 April appeared to be associated with a gravity wave. Because wake lows are short-lived mesoscale phenomena, they are generally not well understood by the operational forecasting community and have been nearly impossible for forecasters to predict. With the modernization of the National Weather Service, it may become feasible to anticipate and track these mesoscale phenomena with Doppler radar, surface observations and finer resolution models. With an evaluation of some of the differences and similarities in the generation and maintenance of severe wake lows, operational forecasters can better understand these potentially severe phenomena and provide the public with useful information on these unusual events.

Introduction Unexpected high winds, occurring behind a band of stratiform rain, brought widespread damage across the mid Mississippi valley on the mornings of 11 April and 28 April. Wind gusts measured over 50 knots 25 m s^{-1} , which is considered severe by the National Weather Service, struck many counties across Arkansas, Missouri, Mississippi, and Tennessee on 11 April and across Missouri and Illinois on 28 April. These severe winds were unique in that they originated from an easterly direction, opposite the direction of movement of the system, and occurred as the rain ended. Also, these severe winds were not predicted and generally caught forecasters by surprise since they did not occur directly with any severe thunderstorms. Fujita identified four stages in the development of prefrontal squall lines Fig. Results from recent studies have associated wake low development and amplification with subsidence warming Fig. Johnson and Hamilton proposed that wake lows were the result of subsidence warming which was maximized at the back edge of a trailing stratiform precipitation area where there was insufficient sublimation and evaporative cooling to offset adiabatic warming. Similar conclusions were drawn by Zhang and Gao in a numerical modeling study. Recently, Gallus found, using a numerical modeling study, that when precipitation rates are prescribed to decrease with time, as might occur with collapsing precipitation areas, microphysical cooling may become sufficiently small as to induce strong subsidence and an intense wake low. Wake low development and amplification have also been associated with gravity waves. Bosart and Seimon proposed that forced subsidence to the rear of convective lines in the presence of a deep, cold and stable boundary layer contributed to gravity wave genesis and amplification. Uccellini and Koch found that many large-amplitude gravity waves form north of a surface frontal boundary, an area characterized by strong lower tropospheric thermal inversions. Also, a jet streak propagating away from a geostrophic jet maximum toward a downstream ridge in the upper troposphere was commonly observed in their thirteen case studies. Geostrophic adjustment and vertical shear instability were theorized to be important in the generation of gravity waves as gravity waves were commonly confined to a region between an inflection axis and the downstream ridge axis in the mb height field and in an area with strong vertical shear. The presence of a lower tropospheric inversion capped by a large conditionally unstable layer, as identified by Lindzen and Tung, was found to be necessary for gravity wave maintenance in order to provide a wave duct which would prevent rapid wave dispersion. As will be discussed further in the following sections, the wake low event on 11 April appeared to develop due to adiabatic warming induced by strong subsidence while the wake low on 28 April exhibited characteristics of a wake low associated with a gravity wave.

The Wake Low Event on 11 April a. Synoptic scale setting The synoptic scale setting at UTC on the morning of 11 April revealed a strong dynamic system across the Mississippi river valley Fig. A surface low was situated over northwest Missouri with a strong but slow moving cold front extending south across central Arkansas into Louisiana. There was a strong baroclinic zone as evident by the sharp temperature contrast on

either side of the front. Stations across Arkansas and Tennessee were reporting temperatures in the 60s and 70s in the warm sector ahead of the front with temperatures in the 20s and 30s being reported across Kansas and Oklahoma in the cold sector. A mb low located over southwestern Nebraska with a deep trough extending across the central and southern Plains placed much of the lower Mississippi River valley in a diffluent zone ahead of the trough. A strong mb vorticity maximum was also located near the base of the trough over Texas. Upper air analysis revealed a strong low level jet at mb Fig. This mb jet helped to trigger convection on the morning of 11 April which was generally non-severe as it moved across the Mississippi river valley. At mb Fig. This finding helps to indicate that geostrophic adjustment processes, which can trigger gravity waves, may have been occurring across the lower Mississippi river valley on the morning of 11 April. Most geostrophic adjustment processes which can trigger gravity waves occur between the exit region of a geostrophic wind maximum and the entrance region of an upper level jet streak propagating toward a downstream ridge axis Uccellini and Koch, The mb height field was evaluated in this study, in contrast to the mb analysis done by Uccellini and Koch, since the jet stream is normally found higher during the warmer months of late spring. Wake low event Tracking mesoscale phenomena such as wake lows is difficult with surface observations as surface observations usually have insufficient spatial resolution Fig. This was the case on 11 April as high winds developed behind a non-severe stratiform precipitation area which formed ahead of a strong but slow moving cold front. The wake low first became apparent around UTC Fig. This wake low moved north-northeast producing two separate wind maxima and pressure minima by UTC. Stations which reported pressure falls of 4 mb or greater in an hour or less were used to determine the path of the wake low. This wake low produced hourly pressure falls up to 10 mb and wind gusts up to 55 knots Jonesboro reported pressure falls of 4. This wake low diminished after UTC as the northern extent of the precipitation area diminished. In figure 7, hourly pressure, wind and radar observations were used to track the wake low while special observations taken between the hours were used to show wind maxima and pressure minima. The hours used were those in which a wind maxima and a pressure minima were evident at the observing stations. This figure shows how mesoscale phenomena such as wake lows are difficult to track from hour to hour as surface observation networks often lack sufficient spatial resolution. The advent of Doppler radar has made tracking wake lows easier and more practical for forecasters. Another separate wake low tracked further southeast across northern Mississippi after UTC, following closely behind a slower moving convective precipitation area. Pressure falls up to 4. Also, many reports of wind damage were received from across northern Mississippi between and UTC. This wake low diminished after UTC as the precipitation area ahead of it diminished in intensity. An analysis of the wind and pressure time series Fig. Also, the winds observed with the wake lows on 11 April were from the east-southeast while the wake lows themselves were moving east-northeast. These facts would help to indicate that the winds observed with the wake lows on 11 April were the result of a strong pressure gradient. A strong low level jet of 50 knots 25 m s⁻¹ and greater was evident on the Memphis VAD wind profile around mb four to six thousand feet. It is likely that this low level jet helped to sustain the observed precipitation through strong convergence which modified the local environment. The combination of a strong mesohigh produced by strong precipitation downdrafts and a trailing mesolow deepened by strong adiabatic warming induced by dry air subsidence, likely created the necessary pressure gradient which ultimately produced the strong winds observed at the surface. Deep layers of dry air were certainly evident the morning of 11 April. The boundary layer up to around mb was relatively moist and nearly saturated due to the recent rainfall. A rear inflow jet on 11 April likely helped to produce dry air subsidence at the back edge of the MCS which induced a strong wake low through adiabatic warming. Also, both soundings revealed weak inversions around mb above a conditionally unstable boundary layer. Lindzen and Tung theorized that an inversion adjacent to the surface underneath a large conditionally unstable layer was necessary for ducting and maintenance of gravity waves which are possible generating mechanisms of wake lows. The soundings on the morning of 11 April revealed an inversion that was neither adjacent to the surface nor deep enough to sustain a gravity wave. The Brunt-Vaisalla frequency is defined as: Using the Nashville sounding and determining that the stable layer was located between and mb, the following parameters were calculated: U was calculated using a stable layer mean wind of 18 m s⁻¹ from the direction of

o, taken from the Nashville sounding, and an estimated wave propagation from the direction of o. This finding would further support the idea that the wake low on 11 April was not associated with a gravity wave but likely the result of strong dry air subsidence produced by a descending rear inflow jet at the trailing end of an MCS, which is in agreement with the findings of Johnson and Hamilton and Stumpf et. Operational forecasting Infrared satellite images from 11 April Fig. By UTC, wedges in the mid level cloud cover over central and southern Arkansas became evident which indicated dry air intrusion in the mid levels was occurring. The wake low at this time was located just east of Little Rock in central Arkansas. These cloud wedges indicating dry air intrusion in the mid levels were evident throughout the lifetime of the two separate wake lows. While satellite pictures alone could not help forecasters predict a wake low, they could aid the forecaster in identifying mid level dry air subsidence which would help verify the existence of a wake low. With the advent of Doppler radar, forecasters were able to identify and track the high winds associated with the wake lows as they propagated across the Mississippi river valley. The vertical reflectivity cross section from 11 April Fig. The absence of precipitation below feet 4. This radar cross section further supports the idea that the wake low on 11 April was manifested by adiabatic warming induced by strong dry air subsidence occurring in association with a descending rear inflow jet. Because wake lows are short-lived mesoscale events, anticipating wake lows hours before they develop presents a difficult task for the operational forecaster. Most operational forecasts involve guidance from the Nested Grid Model NGM and Eta models which both had horizontal grid resolutions of around 80 km in April With a horizontal resolution of 80 km, the best mesoscale feature which could be resolved by the model is the development of a well-defined MCS. Mesoscale models available at the time, such as the meso-Eta model with a 29 km resolution, are a better source to evaluate wake low potential. However, even with this finer resolution, forecasting wake low development remains difficult if not impossible as the meso-Eta model did not indicate strong dry air subsidence behind an MCS Fig. However, both models failed to predict the strong subsidence associated with the mesoscale convective interactions which likely produced this wake low. The UTC initialized meso-Eta model revealed a strong low level jet in excess of 50 knots 25 m s^{-1} at mb as well as a deep layer of dry mid tropospheric air between and mb in the vertical cross section and time cross section from 11 April Fig. Around UTC, some weak downward vertical velocities were indicated along with a slight lowering of dry air at the mid levels, but the operational forecaster would have had a difficult time predicting strong dry air subsidence as the meso-Eta model did not reveal strong downward vertical velocities in the boundary layer. However, the forecaster could have used the knowledge of a deep layer of dry mid level air in combination with radar indications of an MCS and sharp reflectivity gradients at the back edge of the MCS to conclude that an intense wake low was possible. The Wake Low Event of 28 April a. Synoptic scale setting The synoptic scale features on 28 April were not as dynamically strong as on 11 April , but were more typical of gravity wave formative events. At UTC, a surface low was located over southwest Oklahoma with a warm front extending east and north across northeast Oklahoma, north Arkansas and west Tennessee Fig. The Missouri and Illinois region was located north of this warm front which is a favored area for gravity wave development, according to Uccellini and Koch Surface troughs were also located across east Kansas and west Missouri as well as from southeast Missouri across southern Kentucky. These troughs served as focal points for the development of a mesoscale convective system MCS during the early morning hours of 28 April. At mb, a weak, positively tilted trough was located generally along the leading edge of the Rocky Mountains with a convectively induced vorticity maximum centered over western Iowa. In general, the mb flow appeared to be more zonal than the 11 April case. A low level jet at mb Fig. This convergence helped to induce a mesoscale convective system over Missouri on the morning of 28 April The absence of a jet streak ahead of the trough and approaching a downstream ridge axis would suggest that geostrophic adjustment processes were not likely occurring on 28 April However, other forcing mechanisms such as strong vertical wind shear and deep convection may have contributed to the generation of this gravity wave associated wake low. It has been theorized that deep convection alone, such as the MCS observed on 28 April , can provide ample gravity wave forcing Raymond, Wake low event The wake low event observed during the morning of 28 April first became apparent across central Missouri around UTC near Sedalia Fig.

2: An Annotated Bibliography of Selected Chinese Reference Works

Get this from a library! Modern history of China and Japan,. [Thomas B K Lee].

Persons using assistive technology might not be able to fully access information in this file. For assistance, please send e-mail to: Type Accommodation and the title of the report in the subject line of e-mail. Older adults, pregnant women, and persons with immunocompromising conditions are at higher risk than others for invasive *Listeria monocytogenes* infection listeriosis, a rare and preventable foodborne illness that can cause bacteremia, meningitis, fetal loss, and death. This report summarizes data on listeriosis cases and outbreaks reported to U. The Listeria Initiative and PulseNet conduct nationwide surveillance to rapidly detect and respond to outbreaks, the Foodborne Diseases Active Surveillance Network FoodNet conducts active, sentinel population-based surveillance to track incidence trends, and the Foodborne Disease Outbreak Surveillance System FDOSS receives reports of investigated outbreaks to track foods and settings associated with outbreaks. Nationwide, 1, cases of listeriosis occurring during were reported. The average annual incidence was 0. Twelve reported outbreaks affected patients in 38 states. Five outbreak investigations implicated soft cheeses made from pasteurized milk that were likely contaminated during cheese-making four implicated Mexican-style cheese, and one implicated two other types of cheese. Two outbreaks were linked to raw produce. Almost all listeriosis occurs in persons in higher-risk groups. Soft cheeses were prominent vehicles, but other foods also caused recent outbreaks. Prevention targeting higher-risk groups and control of *Listeria monocytogenes* contamination in foods implicated by outbreak investigations will have the greatest impact on reducing the burden of listeriosis. Implications for Public Health Practice: Careful attention to food safety is especially important to protect vulnerable populations. Surveillance for foodborne infections like listeriosis identifies food safety gaps that can be addressed by industry, regulatory authorities, food preparers, and consumers. Introduction *Listeria monocytogenes* infection listeriosis, recognized as a foodborne illness in the s 1, leads to invasive disease during vulnerable stages of life 2. Older adults and persons with immunocompromising conditions are at higher risk for *Listeria* bacteremia and meningitis 3, which can be fatal. Listeriosis usually is a mild illness in pregnant women, but it can cause severe outcomes for the fetus or newborn infant, including fetal loss, preterm labor, and neonatal sepsis, meningitis, and death. Listeriosis is rare 3. However, hospitalization is much more common than with other foodborne infections 4, and listeriosis is the third leading cause of death among major pathogens transmitted commonly by food 5. Although most cases are sporadic i. In, contaminated cantaloupe from a single farm caused the deadliest U. Public health officials rapidly implicated whole cantaloupe, and their actions prevented additional cases and deaths. Outbreak investigations also can reveal unrecognized food sources and food safety gaps that can be closed by regulatory and industry intervention. This report provides an overview of recent surveillance data on listeriosis, highlighting actions needed to protect vulnerable populations. Methods The objectives of this report are to 1 summarize demographic and clinical characteristics of patients with listeriosis, 2 estimate incidence overall and in demographic subgroups, and 3 describe foods associated with outbreaks. Data from three surveillance systems for the period were analyzed to provide this comprehensive picture. A case of invasive listeriosis was defined as isolation of *L.* The case-fatality rate CFR was calculated as the percentage of cases with a fatality. Fetal losses were tallied separately from deaths but were included in CFR calculations. Live-born infants were assumed to have survived unless reported to have died. Patients are interviewed as they are reported, using a standard questionnaire. The Listeria Initiative facilitates investigation of possible outbreaks identified by PulseNet. Listeria Initiative participation has steadily improved since national implementation in; 47 states reported at least one case in FoodNet conducts active, population-based surveillance for laboratory-confirmed infections with *L.* FoodNet does not routinely track underlying medical conditions; they can be reported voluntarily, but reporting is incomplete. For the second objective, incidence rates were calculated by dividing FoodNet data on the number of laboratory-confirmed infections by U. Census estimates of the population of the surveillance area, both for the whole population and for subgroups. FoodNet and Listeria Initiative data were linked to improve completeness of information on ethnicity and

pregnancy. State, local, and territorial health departments submit reports of investigated foodborne disease outbreaks to CDC. Outbreaks were considered multistate if exposure to the implicated food occurred in more than one state. Results Nationwide, 1, invasive listeriosis cases were reported to the Listeria Initiative from through ; deaths or fetal losses were reported CFR: The median age of patients with listeriosis that was not pregnancy-associated was 72 years interquartile range [IQR]: The highest rates were among pregnant women 3. The median size was seven cases range: Two were linked to hospital food services, one to a restaurant, and one to wedding banquets. Soft cheeses labeled as made from pasteurized milk were implicated in five outbreaks: An aged, blue-vein cheese made from unpasteurized milk was implicated in the sixth outbreak. Two raw produce items, pre-cut celery an ingredient in chicken salad and whole cantaloupe, were implicated as listeriosis outbreak vehicles. Conclusions and Comment This report details the epidemiology of invasive listeriosis, which often leads to bacteremia, meningitis, hospitalization, fetal loss, and death, and calls for actions that could protect the most vulnerable populations. Older adults and pregnant women, particularly pregnant Hispanic women, are at much higher risk than the population at large, as are persons with weakened immunity 2. Preventing infections in these populations can have substantial impact in averting these outcomes. Older adults and persons with weakened immunity, as well as infants and young children, are also prone to many other foodborne illnesses, including campylobacteriosis, salmonellosis, and Shiga toxin-producing E. Accounting for underdiagnosis and underreporting, an estimated 1, cases of listeriosis occur each year 5. No progress in reducing the overall incidence of listeriosis has occurred in over a decade 3, 4 ; renewed prevention efforts are needed from farm to table. Listeria is widespread in many environments, and reducing contamination of soft cheese and raw produce with Listeria and other pathogens will require implementation of proven measures as well as development of new ones. FDA has proposed new standards for produce safety and for preventive controls during food processing that hold promise for reducing listeriosis. Nonetheless, investigations described in this report and elsewhere also have implicated cheeses made from pasteurized milk 9â€” Pasteurization eliminates Listeria, but contamination can occur after pasteurization. Listeria grows in moist environments, even at refrigeration temperatures, so it can thrive when soft cheeses that support its growth are contaminated. In addition to using pasteurized milk, soft cheeseâ€”making facilities need to use strict sanitation and microbiologic monitoring. In the late s and early s, U. As more states use the Listeria Initiative to gather data on cases quickly, outbreak response improves. Faster investigations save lives. Advanced laboratory methods will modernize diagnostics and surveillance; more outbreaks might be detected faster using real-time whole genome sequencing Consumers at higher risk for listeriosis and those who prepare their food can reduce their risk. Basic food safety measures e. Persons at higher risk should follow the guidance for the general population not to consume unpasteurized milk or dairy products made from unpasteurized milk e. They also should be aware that some Mexican-style soft cheeses made from pasteurized milk, like queso fresco, have been identified as a source of listeriosis. In addition, health-care providers are uniquely positioned to provide credible information about listeriosis prevention to patients at higher risk. Detailed advice on safely selecting, preparing, and refrigerating foods prone to Listeria contamination and other pathogens is available in English and Spanish at <http://> Reported by Benjamin J. 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3: Vital Signs: Listeria Illnesses, Deaths, and Outbreaks “ United States, “

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2 Cf. Knight Biggerstaff, "Modernization and Early Modern China," *Journal of Asian Studies*, XXV, No. 4 (August,), The writer cites in his article.

This article has been cited by other articles in PMC. Abstract *Listeria monocytogenes*, a bacterial foodborne pathogen, can cause meningitis, bacteremia, and complications during pregnancy. This report summarizes listeriosis outbreaks reported to the Foodborne Disease Outbreak Surveillance System of the Centers for Disease Control and Prevention during 1996–2007. The study period includes the advent of PulseNet a national molecular subtyping network for outbreak detection in and the Listeria Initiative enhanced surveillance for outbreak investigation in 2002. Twenty-four confirmed listeriosis outbreaks were reported during 1996–2007, resulting in 1,000 illnesses, hospitalizations, and 38 deaths. Outbreaks earlier in the study period were generally larger and longer. Serotype 4b caused the largest number of outbreaks and outbreak-associated cases. Ready-to-eat meats caused more early outbreaks, and novel vehicles i. These changes may reflect the effect of PulseNet and the Listeria Initiative and regulatory initiatives designed to prevent contamination in ready-to-eat meat and poultry products. Listeriosis includes a spectrum of clinical illnesses ranging from febrile gastroenteritis to potentially fatal bacteremia and meningitis in groups at higher risk for invasive disease, including older adults and persons with certain medical conditions 2, 3. Although pregnant women infected with *L. monocytogenes*, the incidence of listeriosis has remained stable, with rates ranging from 0.1 to 0.2 per 100,000 live births. The 6-year average rates of hospitalization and death were 0.1 and 0.01, respectively. Millions of US dollars in health care expenditures and quality-adjusted life years are lost to invasive listeriosis annually 7. Foodborne transmission of listeriosis was first recognized conclusively after an outbreak in Canada in 1988 that was associated with consumption of contaminated coleslaw 1. In the United States, the first recognized foodborne listeriosis outbreak occurred in 1990 and was associated with pasteurized milk 8. During 1996–2007, outbreaks of foodborne listeriosis associated with Mexican-style cheese 9 and shrimp 10 were subsequently documented; a single case was also attributed to turkey frankfurters. PulseNet, the national molecular subtyping network for enteric bacterial disease surveillance, was established in 2002. An investigation is initiated if the upload rate for this pattern combination is greater than the historical background or if other epidemiologic indicators suggest a common source. Invasive listeriosis has been a nationally notifiable disease in the United States since 1996. Although most listeriosis cases are sporadic i. In addition, outbreak investigations often provide information about transmission of *L. monocytogenes*. Following a Council of State and Territorial Epidemiologists position statement, the Listeria Initiative was launched in 2002 to address these concerns www. The Listeria Initiative encourages state and local health department officials to routinely interview all patients with culture-confirmed listeriosis as soon as they are reported by using a standardized, extended questionnaire to collect food histories. When a cluster is identified in PulseNet, Listeria Initiative data related to that cluster can be reviewed quickly to identify common food exposures. The Listeria Initiative also facilitates case–case studies by comparing exposures reported by cluster-associated cases with information from listeriosis cases that are not associated with the cluster. The effectiveness of the case–case approach has been illustrated repeatedly, for example, during the investigation of large, multistate outbreaks associated with delicatessen turkey meat and cantaloupe 15. This report summarizes single-state and multistate listeriosis outbreaks reported to CDC during 1996–2007. We describe characteristics of the outbreaks and affected patients to summarize outbreak trends, *L. monocytogenes*. FDOSS is a national surveillance system through which state, local, tribal, and territorial health departments voluntarily submit to CDC reports of outbreaks by using a standardized form CDC form 1015. In 2002, FDOSS surveillance activities were enhanced through the use of an electronic data collection form and other activities to increase reporting. For each outbreak, FDOSS captures information on etiology, food vehicle, outbreak size, duration, geographic location, setting, and selected outcomes i. Aggregated age group and sex data are also reported. A listeriosis outbreak was considered confirmed if the same serotype of *L. monocytogenes*. Outbreak duration was calculated as the number of days between the dates of illness onset of the first and the last reported cases. To define early 1996–2002 and late 2003–2007 study periods, 2002 was selected as a cutoff point because it coincides with the launch of the Listeria Initiative. Serotyping of

outbreak-associated L. The 24 confirmed outbreaks resulted in illnesses, hospitalizations, and 38 deaths. Among 16 outbreaks with available data, the median duration was 42 days range 1â€” days. Nine states reported single-state outbreaks.

5: Rhoads Murphey - Wikipedia

The Food Safety Modernization Act (FSMA) is a major update in the area of food safety and is the most sweeping reform of our food supply regulations since the late s. FSMA shifts the focus from reacting to contamination to preventing contamination.

He enlisted as a conscientious objector and served with the British Friends Ambulance Unit in China from to In the ambulance unit, Murphey and an international group of men drove old, charcoal-powered Chevrolet trucks throughout southwest China with medical supplies. Murphey taught Asian studies and geography at the University of Washington from In , he went to University of Michigan as professor of Asian studies and geography. His title was changed to professor of history in He focused on the modern history of urbanization in the region through such works as Shanghai: Key to Modem China Westerners in India and China won an award for best book of the year by the University of Michigan Press. He was a delightful guy Well, there was no real language barrier because his French was excellent and most of us knew French He had a fourth floor walk up "cold water" flat I know why we used to go! But, we had been prevented from doing so by the stupid Kuomintang, and so, we finally "sicked" the Americans, the American Embassy, on them To make them, grudgingly, agree to let us go up there They [the Communist leaders] all turned out! That was one of the differences between that side and the Kuomintang side We had no notion of what a nightmare they were going to create. Shanghai, Key to Modern China. An Introduction to Geography. Approaches to Modern Chinese History. University of California Press. University of Michigan, Center for Chinese Studies. Essays on the Works of Joseph R. The Western Experience in India and China. University of Michigan Press. The Fading of the Maoist Vision: The Scope of Geography. A History of Asia. Fifty Years of China to Me: Personal Recollections of Association for Asian Studies.

6: Capacity and Implementation Team | ORPB | DFWED | NCEZID | CDC

The Food Safety Modernization Act of (FSMA), signed into law on January 4th, , authorized the Centers for Disease Control and Prevention (CDC) to create a diverse working group of experts and stakeholders to provide routine and ongoing guida.

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9: Wake Low Severe Wind Events in the Mississippi River Valley: A Case Study of Two Contrasting Events

Rhoads Murphey (Philadelphia, Pennsylvania â~ Ann Arbor, Michigan) was a geographer and historian of Asia who taught at University of Washington, Seattle, and University of Michigan, Ann Arbor.

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