SECTION II RECLAIMING SILENT SPACE

This section deals with the dual problems of discordant sound or common noise and the lack of silent space in our lives. How do we curtail and discourage the first and champion silence as part of the harmony of concordant sound? Frankly, the task seems daunting in an ever more sound-filled world, but solutions can be found. Let us take matters into our own hands and change the current situation. We are not to endure silently the unwelcome sounds that surround us, nor are we to sound off through ineffective loud protestation, for how can one silence a noisy angry crowd? We have become aware of noise pollution in the first section along with erosion of our birthright of silent and quiet space. Even what we are willing to live with as individuals is not salutary, if others suffer through our inaction. The following is not a sure solution, for that rests in the certitude that all affected parties work together to achieve the goals. Rather it is a hopeful expectation that some meaningful action will result.

In order to re-establish order and harmony we start within ourselves, the ultimate repository of meaningful action. We need to reach out from the grassroots of our immediately established harmonious space and bring order in ever widening arenas of our influence. What we cannot do is permit a field in which discordance is allowed to go unchecked as though tolerance allows a coequality of all types of sounds; such only leads to more chaotic conditions and not a respect for other people and their silent spaces. The goal is not all sorts of sounds but a tolerance of those who champion pauses of silence in their hectic lives and their right to such silence. Blaring Beethoven's Fifth along side of punk rock does not give greater harmony to the world -- only an unrecognizable jumble of added sounds. Harmony requires, not mixtures of disjointed sounds, but the interplay of pleasing sounds with periods of silence, the measured rhythm of activity and rest.

We champion the creation and maintenance of silent space and believe that this is the best means of combatting excessive and discordant sounds. Practical and technical solutions exist but our people must have the political will to put them into effect. After we have found a way to capture and retain a harmonious environment, we will find ways to implement these needed changes through sharpening our own advocacy skills and working in a broader social context, so that all who are hurt or threatened by unwanted noise can take command of the situation and make proper adjustments to live in greater environmental harmony. To achieve these goals requires that we rethink what is acceptable and appropriate to address the ills of excessive sound. The harmony of concordant sounds and silence is an asset and a right that belongs to us all; infringement on that is a social malfunction that is as reprehensible as polluting air or water. We deserve more.

A. Sound Assessment and Auditing

An assessment of a given space is necessary in order to get some handle on reclaiming our silence commons. An assessment tells us exactly where we are at a given time, once we have recognized the dangers of various environmental impacts. With respect to sound pollution, outsiders can do better assessments than those involved in the action. The invitation is to become a good assessor. We cannot step outside of the planet and look at her as a visitor. We can subdivide the portions and prepare ourselves to look beyond our immediate environment and clearly describe a given situation. Perhaps monks (whether Christian, Buddhist or Moslem) who are steeped in the value of silence may prove better assessors, but they are generally not activists. Therefore for better or worse others must fill the roles.

1. Tuning Ourselves to Sounds and Silence

We do not begin in total silence, nor necessarily immersed in listening to our favorite music. We begin by cultivating an ongoing atmosphere of ever growing harmony. Thus the resolution is to become harmonious and protect the immediate surroundings that enhances this harmony.

Opening and focus. We must focus on the tasks ahead. That means we restrict the input of sounds in any given time period: prepare our hearts through prayer and meditation to hear the divine symphony; establish silent space in our immediate lives; reduce electronic media input (television watching, etc.); increase silent reading time; quiet down the surroundings where possible; and encourage others to assume similar practices and help us to exit the captivity of the vibrating steel drum of life. We must form communities that value harmony and find sounds to be remedial, beckoning us to listen and to be elevated in spirit. With equal fervor we value silence that is precious, treasured and resembles a drink of cool water for the parched.

Sensitivity. In order to evaluate a situation we must value what the surroundings could become, rather like barefoot sound promoters. "I do not have an ear for music, but I know what sounds right and wrong." However, assessing the role of sounds alone and not the interaction of sounds and silence misses the mark. Yes, we do need an elementary understanding of discordant sounds -- which ultimately is a question of sensitivity to the needs of others around us for rest. Any form of music that disturbs others in our midst is not concordant or with the hearts of all. The challenge is to adjust to reciprocally appreciated

sounds, but even more so to grow in sensitivity to the needs (sounds and silence) of all parties present. And this sensitivity may actually exist with the totally deaf who see the need for harmony in other sensory realms such as those of visible "noise." The key is to be sensitive to all.

Enthusiasm. A third characteristic of the sound assessor is enthusiasm. The possibilities for finding satisfactory solutions are immense; the goals are lofty; and the willingness of others to join depends on the inspired group dynamics that we can catalyze. In essence, we have to have enthusiasm (the God within) and manifest this as harmony emanating outward to others in the world around us. We must transcend the dullness of the deadening Babel all about and consider this current condition to be temporary. Harmony must come; harmony will come, but we must have faith -- and the stronger the faith, the greater the enthusiasm. And this enthusiasm is grounded in the power of sound coalescing with silence, that primordial harmony to which we yearn to return.

2. Distinguishing Natural and Human Sounds

Nature is filled with sounds many of which we take for granted. We need to be open to the fullness of sound/silence, and to have sensitivity to our natural surroundings and a natural enthusiasm for how these can enhance the harmony that is within.

> *Let the heavens be glad, let earth rejoice,*
> *let the sea thunder and all that it holds,*
> *let the fields exult and all that is in them,*
> *let all the woodland trees cry out for joy.*
> (Psalm 96:11-12)

We stop to ask questions: Do we hear the breezes in the trees? Do the sounds vary with the types of trees and the amounts of foliage? Are the sounds of spring and autumn different? Does the same hold for the roaring of the seas as the waves splash against the seacoast? Do we stop and strain to hear the sound of the brook as it rushes past? How do you spell the sound of running water and how is it different from the sound of falling rain or the trickle of a flowing spring? What is the soothing sound of a crackling fire and how does this stir the depths of our psyche still celebrating the discovery and control of fire millennia ago?

And nature has some frightening sounds as well, especially those that we are unfamiliar with and chance to encounter at an unexpected time: the roar of the ocean during a storm; the mighty sound of a powerful waterfall; the wind of a hurricane, which is so described as a rushing locomotive; and the hail that beats down on a roof and destroys our crops. Nature's sounds may be violent

and even regarded as discordant because we are frightened by them. And when we listen very hard we realize that even plants, although silent for the most part, give off faint sounds, e.g., leaves rustling in the breeze, corn growing on a warm summer night. All living things contribute to a natural harmony, if we but listen.

Sounds of animals. This morning I let a trapped bird get out of the screened-in back porch and heard a special chirp as it made its way out, "Free at last." We hear the sounds of various animals if we listen: crickets, bees, birds, wildlife, barking dogs. They certainly vary, with sounds of merriment and alarm. And our English language contains about two hundred words that show variety in animal sounds (whine, squawk, chatter, sing, moan, cry, bleat, low, bawl, squeal, etc.), some of which we humans share. Yes, we may not know the animal languages but the modes of communication and interchange are certainly subtle. Some of us are mesmerized as to whether the cadence and length of cawing of a crow is a means of communication among that highly social flock. The same applies to the honking of geese in flight and the whale calls at sea. Not all animal sounds are peaches and cream. The animal world is filled with examples of irritation, pain, alarm, hunger, and other negative feelings that are expressed with a variety of sounds. A penned up dog expresses its displeasure through incessant yelps, which are truly discordant.

Sounds of people. We humans share with the rest of the animal kingdom in that vast range of sounds that we express through conversation, singing, laughing, and lamentation. We voice a wide range of emotions, e.g., anger, happiness, alarm, grief, along with an infinite number of ways of communicating with others complex descriptions and intellectual conversation. We can emit pleasant sounds such as song, poetry, and conversation, and we wail and shout in many disturbing ways. A BBC radio special about distant poverty includes a chorus of crying infants. The world's discordance of suffering people gives us an uncomfortable feeling. A whimper from a baby with a wet diaper tells something and communicates quite emphatically an unpleasant condition both to the caregiver and to all within ear shot. And discordance takes on a variety of forms from loud music and partying to arguing and curses and shouts of terror and alarm. We share a common experience of giving and receiving such sounds. Granted all these sounds, we pray for moments of blessed silence from the whistles, sirens, and traffic noises all about. The discordant sounds of jets taking off or overhead, of revved motorboats, of traffic horns, and just the rumble of heavy traffic can unsettle individuals and communities without their knowing it.

Youth experiences. From petting farms and zoos to total primitive nature experiences, youth deserve an education in the

sounds of nature. These experiences could be integrated into pre-school through all ranges of formal education programs. Few youth need to be immersed in urban noises though a few rural youth may desire the experience. Agri-tourism is one way of providing for an acquaintance with farm animals. Furthermore, wilderness experiences, from day hikes and short field trips to camping and backpacking, give youth an acquaintance with a wider portion of the total environment. The Society of Protection of Nature in Israel has a series of environmental camps throughout the country; students at the seventh or eighth grade level spend a period of time learning to appreciate the natural environment. That first-night experience for many urban youth may prove terrifying because of the stillness and the unusual sounds in the wilderness conjuring up visions of aggressive animals. Due to such unfamiliarity on the part of the majority of youth, introductory nature experiences through day hikes may prove more beneficial. This program can be elevated to longer periods with primitive outdoor experiences on an elective basis. Basic scientific education about such subjects as land forms, rainfall and water flow; basic knowledge about insects, birds and mammals; and botanical information are needed as part of a total nature program. As youth become familiar with daytime, morning and evening sounds, the nocturnal sounds do not seem so frightening.

Adult experiences. Nature experiences are also of importance for adults. They could participate in day hikes, weekend outdoor outings and birdwatching excursions. Most adults with little nature experience may abstain from such programs. For those who are reluctant and for the less mobilized, virtual reality may prove satisfactory, namely, attending a wide screen theater, showing the wilds of Africa or mountain climbing in the Himalayas. All in all, the theater is a far more ecological approach than actually penetrating the wilderness, for it avoids the impacts of hikers and campers. Those incapacitated by age or health but inclined to more outdoor activity could consider gardening, whether by means of bench containers or small plots or on a larger scale. Acquaintance with the great outdoors, awareness of growing conditions, psychological and spiritual well being from the practice of gardening, and assurance of eating garden-fresh, home-grown products add to the natural experience.

3. Auditing our Environment for Excessive Sound

We observe that our pet dogs prepare to bed down by turning around a full revolution before settling down. That is supposed to be an ingrained dog instinct to ensure that enemies are not lurking in the vicinity. In somewhat the same manner we should look about before we put in to rest as well. What is life like in our own abode, and could we find out through some sound auditing?

Few of us observe very closely. I observed a state park where I have liked to camp for years and found the sound levels this year totally unacceptable. Had the nearby highway traffic increased or am I more aware? It may be a little of both. Descriptive observations recorded in day journals or for school assignments are quite helpful, but today we have opportunities for quantitative determination through low-cost modern instrumentation that can tell a fuller story. In fact, of all the forms of pollution, noise may be the most easy to detect and to compare to accepted health and safety standards.

Noise meters. Measuring devices come in all price ranges. For accurate measurement of the sound-pressure level (SPL) one may wish to obtain precise readings (accurate and dependable), and such instruments made by Audio Control, Bruel & Kjaer and Cetec Ivie from $1,000 to $7,000. However, less accurate but still serviceable meters for obtaining approximate ranges of noise are available from such electronic outlets as Radio Shack for less than $100. An accurate meter is essential to proper monitoring, when the volume of the noise, the recorder's distance from the source, and the time when the noise originates are to be part of the total record.

For the accurate readings some calibration with an absolute reference is necessary, and care must be taken so that the microphone in the device is approximately in the same location as the person's ear. The resulting "average SPL" is a readout as a decibel number. Obtain advice in purchasing noise meters for school science projects, scout troops and others. Maybe this can be a good birthday gift for a budding public interest scientist. Rough estimates tell us much, but a precise determination of the sound profile depends on the use of sophisticated, higher-priced instruments. An audit can be approximate and if serious levels of noise are observed, the proper authorities may need to be notified for more precise measurements.

Approximate domestic sound profile. Establish the noise profile of your own home -- bedroom, kitchen, living and recreation room. While continuous monitoring would give a more precise profile, still monitoring people can get a fairly clear understanding of the noise levels in various parts of the house during different parts of the day or week: the volume of traffic, unusual interruptions (hovering helicopter), sounds of electronic media and utilities, invasive sounds from outdoors and neighbors, revving motorcycles. Allow this sound audit to extend to all parts of the house. Do an audit of closets and nooks and diagram the differences. Sketch your residence house's "sound profile." You will discover the quieter parts of the house and maybe surprised at the findings.

Approximate external sound profile. How can anyone ever get a handle on the noisy world around us? In the past, this noise was considered a good thing, the sign of progress and meaningful business and industrial activity. We believe we can manage the interior domestic environment far better than changing the sound levels of the great outdoors. Start in the surrounding outbuildings, porches and yard. In creating the profile of the immediate surroundings it is surprising how greatly the sound varies behind berms, coves, hills, clusters of trees, and heavy vegetation. If time sequences are obtained, note the differences between summer when the trees are fully leafed and winter when they are bare. Note also the far smaller differences in sound between winter and summer if the trees are evergreens. The profile emerges as a learning experience for people who have tried to block out the sounds of the neighborhood. These people try to convince themselves that they do not hear overhead planes -- and yet the noises have an effect as they would on soldiers on a battlefield. They can cause hidden stress and even noise-induced hearing loss.

In mapping the immediate surroundings, some facts may emerge. Neighbors with nerve problems may become acquainted with what you are doing; they may even wish to spend more time in the quieter parts of their homes. Neighborliness and well being are community- improving side effects of an immediate external audit. Unwelcome sounds affect each of us; some take it better than others or at least fool themselves into thinking so. Share your profile with friends and neighbors. They may wish to repeat your experience and discover for themselves what the noise profile of their immediate environment (interior and exterior) actually is.

Broader community profile. What we find in our homes and backyards may inspire us to venture further afield. We could extend profiles to the place of work, school, business, church, park, library and hospital. As we become more the community noise ombudsman -- or woman -- we can spread the word to others who think they can cope with noise. I encouraged one airline attendant to take a noise meter on board a variety of airplanes to check interior noise. She found that on seven different models of aircraft, at last at take off, the sound levels of all the respective first class sections exceeded what is allowed by American standards in the work place. She hid what she was doing by pretending the device was a cosmetic pack and she was looking at herself in a mirror.

Developing noise sensitivity. With time, after using the noise meter under various circumstances, the operator will be able to judge the volume of noise to a serviceable degree of accuracy. That is to be expected with accumulated experience, and so many good effects can accumulate. Noise pollution experience allows

for good judgment as to the source and degree of a specific noise pollutant; it also makes one more keenly aware of sources and degrees that could be easily avoided or curbed through some sort of personal interaction. Sensitivity stimulates activism, and draws the operator to start where it is more proximate -- himself or herself. Let us start inside our home; then we must strive to quiet down our immediate surroundings; and then we will proceed out to the wider community with reference to our time with others and the broader environment in need of our activism.

People vary in their degree of noise sensitivity and so it is always good to recruit as associates those who are concerned about the community's loss of quiet space: health caregivers, librarians, teachers, and civic leaders. It should also include those suffering an illness or recovering from one, people who have mental problems and take nerve quieting medicine, senior citizens who have good hearing, students at all levels, professionals who travel much and need rest, night shift workers who require daytime sleeping periods, and those working at home. In fact, counting everyone, they perhaps become a silent (and hoping for silence) majority. Noise makers may try to say this is a small minority of cranky folks but that is simply not so.

4. Coping with Excessive or Discordant Sounds

Distinguishing different types of sound, performing an assessment of areas, and completing audits in order to establish a sound profile are all steps in reclaiming our silent space. In the course of coming to this stage quite often two things emerge: the first is that some people suffer from excessive noise and the awareness of their condition is just emerging in a more profound degree; the second is that self-appointed assessors of the environment know most about assaults of sound on themselves and the need to protect silent space. It is somewhat like the flight attendant's instructions for air passengers in case of pressure drop: put on your own oxygen mask first before helping others. However, these operations need not be separated by any time span.

One's own noise problems. First the individual's noise conditions. One temptation is to deny the noise or say that it does not affect me since I am now so familiar with it that it is no longer a problem. A second approach is to excuse myself as not being an environmental expert and, even though this may be theoretically a serious problem, I will leave solutions to those with more expertise. A third approach is a natural one, namely, escape, for that is doing something that I am free to do -- and preserve my sanity as well. Another possibility is to run from the noisy area, and do something more, take other affected people along. It is perhaps not the most perfect solution for the noise-making continues, but it is a start. Other short term common

sense escapes include turning down the volume of electronic devices and turning off the phone during times of rest.

Protecting devices. Sometimes we simply cannot escape. Our travel obligations require that we endure noisy areas such as crossing the tarmac of a busy airport to reach the parked regional airplane. As with the oxygen mask, proper ear muffs become a protecting device. Our fingers help, if we aren't carrying bags, but avoid the cotton plugs that are virtually useless. When well fitted, the commercially available ear muffs worn by workers at airports are effective protective gear, but who wants to cart these around? If ear inserts are selected, remember that ear canals are rarely the same size and the ear inserts must be separately fitted for each ear. Protective muffs should be adjustable to provide a good seal around the ear and proper tension of the cups against the head. These are available in sport and drug stores. You may request that airlines furnish ear protectors for passengers when they board or deplane, since the noise on airline runways exceeds acceptable work levels.

Silencing the noisemaker. Escape or protection are two ways to cope, but not necessarily the best from the viewpoint of directly addressing the noise pollution issue. We could tell the evening chainsaw operator we are calling the police. Such requires more confrontation skills than some have. Many do not have the nerve to tell off the fellow with a chainsaw in his hands. Quite often the traffic congestion or factory sounds are far too formidable for a single voice to address. When noise affects entire communities, the noisemaker must be confronted by a broader-based coalition with proper law enforcement backups. We learn from our own mistakes. When younger, we were sources of noise while hardly realizing it. We played the radio too loudly and thus disturbed others; we held loud conversations when others desired to sleep; we were simply insensitive to their own desires for silence at given times. Thus our awareness of all forms of pollution grows through the years, not only as to how they affect me as an individual, but also as to how sound can affect our neighbors as well. We need to decide whether we are going to be a lone advocate or whether we will reach out and enlist others to assist. We graduate from immediate noise sources to distant ones through noise-reduction technologies and regulations.

B. Harmonious Environments

The challenge for sensitive and concerned inhabitants who are battered by excessive and discordant sound is to confront the problem directly. But first comes the harmony within themselves so they can effectively assist others. It sounds selfish unless we realize this is a psychological priority that requires working on several fronts at the same time. We demand our interior

harmony as grounds and basis for spreading harmony to others. Noise is not to be silently endured for that is silence misapplied. To act on this matter is to reclaim at least the most elementary area of my own silent space, and this reclamation becomes the template of moving out to others. Granted, we could become so selfish that we are satisfied with achievements and expect others to take a similar route in their own lives. However, most people consider the needs of neighbors as well, and this is part of an interior harmony that is godly in structure.

Facing the challenge before us leads us to the goal of a harmony, wherein we redouble our focus on the problems of excessive sound, sharpen our sensitivity for others and encourage enthusiasm on the part of all. The harmony of concordant sounds and silence is an asset that belongs to all, not just to me. To harmonize within ourselves and forget about others is ultimately disharmony, for we must work together to tackle problems and threats that affect us all.

1. Achieving the Silence of Heart

Progress in our interior and spiritual life is achieved in the silence of the recesses of our hearts, the core of an interior peace that comes in communion with the Almighty. This peace of soul is wrapped in inner silence -- but not total silence. Delving into that interior being reveals a deeper communication through prayer and meditation that involves sounds hardly able to be perceived in this world's noisy surroundings. Within our interiority there unfolds the deeper dimensions of Mystery itself, which is surrounded by a barely perceptible harmony. In our inner striving for communion with the Divine Harmony we strive for exterior harmony that can work in unity with what is budding within. We crave to help bring about the divine Kingdom or the universal peace that all religious people of good will strive to attain. Harmony is a universal calling to all -- the healthy and active, the physically ill, the confined prisoners, parents and children, in fact all people. When nothing else succeeds in a world of disharmony, we fall back on our inmost interiority.

a) Prayer and Peace of Soul. Certain surroundings may be conducive to finding a greater peace of soul, but these are not absolutely necessary. Normally the noise and congestion of the world around us keep us from attaining this peace of soul, but only because we assent to them in their utter disharmony. We hum along with a very bad tune as though we agree with it. However, the Almighty is all powerful, and that means God can and will undoubtedly communicate with all who ask, whether in peaceful silent surroundings or in the din of our present age. When studying in noisy New York City, I was always struck upon entering St. Patrick's Cathedral; there one found praying souls at deep interior peace with God. But we need not have such special

places, for many of the poor of the world never get to Manhattan and are surrounded by the squalor of a slum life they can never leave. But they fall back and can find God within, because God's power and mercy overcome such adverse conditions.

Under normal circumstances, places of physical privacy and times of relative external silence and/or concordant sounds can become congenial environments for reflecting and delving into the deeper mysteries of life. In such surroundings we have the gift to break loose from our protective walls as though a hatchling emerging from an egg. In cases of extreme need we may retreat, but with gifts of silence we can move about. However, at times we must sound the retreat to look within and find there the Mystery that keeps us inspired. We look into our hearts where we then find ultimate direction and freedom, which no one in a noisy world can take from us.

A friend of mine in federal prison complains about the lack of privacy and quiet space. He is advised to do the best in interior prayer and be open for the Almighty to exert power in the most trying of circumstances. Throughout history, people have found spiritual solace in the most miserable circumstances. They have incorporated one of many modes and methods of prayer and meditation, virtually all of which seek tranquil surroundings; but prayer of the heart is always active, communicative, and not able to be silenced until the heart is silenced. The institutionalized, the oppressed, the enslaved can find interior peace of soul even when external intrusiveness into their lives seems overwhelming.
And that applies to harried parents as well.

b) Rests and daily breaks. The first thing to ask those experiencing certain stressful difficulties is whether they are comfortable being at rest and silent. As the old lady on the front porch rocking chair says, "Sometimes I sits and thinks, and sometimes I just sits." Do we value being alone with our thoughts, with ourselves, and with our God? The nervous condition of being busy makes us pretend that we can tolerate chaotic situations -- iron men and spiritual marines. We try to prove to others that we are in control and that we get along in virtually all circumstances. Like untidy stockroom managers, we find hidden nourishment amid chaotic conditions. This condition may only impress the most unkept and disorganized. But such conditions are not good for us nor others. Rest helps us to muster the energy to organize better and to plan how to develop a more harmonious world; rest helps others to discover their condition and the need for organizing their tasks.

Some stress-related industries recognize this need for periods of rest through mandated periods of time-off. For

instance, commercial trucking firms (through corporate, state and Federal regulations) require drivers to keep logs and take mandatory breaks from their driving. Assembly-line workers are required to do the same, as are airline pilots and bus drivers, certain service employees and computer analysts, students and teachers, in fact just about all who must concentrate for periods of time. Dr. Sydney Blair, a medical expert on hand-related health problems, says that no one should spend an excessive length of time at a computer -- a rule that I break. However, I do try to take ten-minute breaks every hour and find it increases productivity. Medical experts predict computer-related occupational hazards, namely stress of the eyes, wrists, back, neck, nerves, etc. To spend entire days before the screen in one fixed position is an example of immersion in sensory noise, for our congested world includes our computer screens.

My late cousin, Edward Perraut, a medical doctor, said that he operated best by taking half-hour afternoon naps, no matter how many extra patients were out there in the waiting room. He needed that rest in order to work better the rest of the day. The more congested the work place and the more intense the work load, the greater the need for a sequestered place -- a hideaway or retreat -- that is cut off from noise and busyness. The hardest thing for many of us to do is to stop auto driving on long trips, especially when alone -- yet the safety of all fellow drivers on the road and their passengers requires it. Stop, walk about, get something to drink, close one's eyes. Driving in traffic tests our nerves and reflexes maybe to the breaking point. We must concentrate and find that other thoughts and reflections are nearly impossible if we are to be safe drivers. When traffic lightens or we come to a virtual stop in a traffic jam, occupying our minds with recalling people, events, or geographic place names may help. One suggested remedy to calm down in traffic is to play soft music at a slightly slower beat than your heart.

c) Sabbaths and weekly rests. My father, a successful Kentucky farmer, said he could recognize a farm where the person never honored the Sabbath's rest. The place betrayed a lack of proper planning and organization. A need for sabbatical rest extends beyond farmers to other people and creatures and to the land itself -- which needs its sabbatical rest as well. By allotting days of rest we also plan the remainder of the time better and that adds to our organizational abilities. The demise of the Blue Laws that forbade working on Sunday (or Saturday) is not a liberation but a binding. People need their time of rest, and this includes those who serve in fast food restaurants and shopping malls, all now frequented seven days a week, and places that boast 24/7 schedules. Service employees cannot continue to grind on, day after day, and often at two or more jobs to make ends meet. Routine becomes unbearable, if each worker does not

experience regular breaks -- not just within the day but of extended lengths of time in the week and even the year.

d) Sabbaticals and period breaks. The term *sabbatical* generally applies to an extended period time off after a number of years of academic or professional work. Through the change of pace of a sabbatical the person becomes more creative and productively energized. Thus reduction of real or individually-induced stressful situations should be a prominent factor in choosing sabbatical activities. The stressed out person needs a change of scenery, a distance from immediate work, a variation in routine, a luxurious period with nothing or little planned at all, a longer length rest period.

e) Recovery and family leave time. Ill health and family tragedy afflict many of us and life's normal circumstances slip out of immediate control. We need breaks to deal with such circumstances and periods to restore a balance to our lives. We could use the luxury of recovery times and places of less stress and more rest -- and silence. It is baffling to observe loud televisions in hospital recovery wards with enough background noise as already mentioned. Managed health care may restrict recovery time. Do we all recognize that visiting the sick may take a toll on the recovering person? If we do visit, let's make it mercifully short and not encourage bouts of extended chatter. Recovering folks need rest.

Family leave issues (births, deaths, serious illnesses, etc.) are now part of many work agreements. Such arrangements allow for the solitude necessary to mend fractured emotional lives -- be it quiet time, a visit to friends or grieving therapy or counseling sessions. Arrival of a new-born child or an adopted infant demands some leave time to make proper adjustments. Sometimes life's unexpected circumstances may involve a separation or divorce or the relocation of an elderly family member. People often need to catch their breaths and that means a temporary curtailment of the hectic work load. Often there can be adjustments that include less commuter or travel time and carrying out part of the work closer to home for a period of time immediately after a tragedy or stressful event.

New Commuting Solutions. Commuting to work has become quite demanding for many American suburbanites and actually takes more and more time in a work week. The obvious solutions of transferring more work to home or living closer to the workplace are not options for many people. Staggering work hours to avoid the traffic rush is another option open only to a minority of commuters. Using public transportation or carpooling are more obvious solutions. Planning new traffic routes can prove fruitful, for often less-used secondary roads can prove to be

shortcuts for at least part of the trip -- but there are safety hazards on these as well. After all shortcuts have been considered through trial and error, much daily commuting congestion still remains. Background music assists commuters who may need time to collect their thoughts. When all is said and done, commuters must ask the basic question: Is this worth the hassle?

Resolving to Have More Rest. During periods of annual retreat, annual planning or annual health examination one should ask the following questions:

* Do I get enough sleep? High quality and restful sleep? Could I add a half hour or an hour to this daily span? Could this be at a different hour than normal nightly bedtime?
* Do I take some breaks during the day? Do I make these when needed or on a schedule set by others? Am I willing to increase these if need be? Do I turn off the computer (or screen) for periods of time? Do I take breaks in driving?
* Do I take needed rest in some fashion? Are there fixed forms of entertainment and relaxation? Do I help others find their periods of daily, weekly or annual rest? Do I look forward to holidays and enjoy them as work-free periods?

2. Reserving Quiet Time During Vacations

Resolving to have a normal vacation seems so easy. The normal can be an illusion when it includes congestion, long periods of discordant sounds, and a busy and filled schedule. We may fool ourselves into thinking it is normal when it is really abnormal. While prisoners and hospital patients realize their current situation as beyond that of normal living, many of us outside institutional walls do not recognize our need for normal silent moments and periods of rest time. The best defining term for a vacation is "a period set aside from the routine." Some such as caretakers for the elderly or sickdo not have this luxury; others note that routines vary during the day. At least once a year all people need to remove themselves from the rigors of daily scheduling, and to have a period of rest and change of pace.

Amazingly, in many parts of Europe the medieval serf had a better chance at rest, for civil and church law required festive periods of rest on holydays or the patron saint's feast; here the serfs could "let their hair down" so to speak. For them, going on pilgrimages was vacation activity and many took advantage of this on rare occasions. Today, our lower income individuals in secular societies do not have opportunities to take the mandatory holiday rests nor are they encouraged to take pilgrimages. They simply do not have much extra time to themselves and their families much less extracurricular programs for personal growth.

Vacations are meant to relieve stress and offer opportunities for rest. Does this happen? Take a family on a road trip via a congested highway in summer. The passengers are discontented; the highway is congested; the destination is crowded and noisy. Vacation? Well yes, in one sense; it is perhaps not routine when the road congestion occurs on a different highway. A second driver will give the main one a break; if starting very early, one can beat the heat and the mid-day congestion; taking a rest stop at mid-day could allow for added rest; not traveling too far will permit more time at the destination. The fact is that vacations are all too often decided on whether the destination will be a good topic of discussion for the whole family later at school or work. Sometimes the "where" has higher priority than the rest period itself. Conversation pieces often determine a vacation destination.

Factors determining a less stressful and quieter vacation include the following: lower costs, more physical labor for those who lack it in their daily routines; the number and congeniality of those in the vacation party; the absence of rigid scheduling and allowance for unscheduled free time; and the opportunity to do something quite different from the routine. Examples of something different include the follow vacation alternatives hopefully performed fairly close to home:

* **Volunteer work.** It can be relaxing if different from the routine. An accountant volunteering who assists with a non-profit's books is hardly on vacation, only working without pay. The accountant who helps upgrade a soup kitchen by helping to install tile may be having a vacation, but working outdoors such as assisting with a Habitat for Humanities project would be better.

* **Improving the home environment for a relative or the needy.** Outdoor work may occur here such as helping to fix up the place with a new greenhouse, a butterfly garden, or an extended raised-bed garden. This can be a welcome time away from fighting congested traffic and the hassles of travel and one can observe the improvement at the end of each day as an achievement.

* **Intellectual/spiritual enrichment**. This may involve vacationing that consists of a seminar, Elderhostel program, or spiritual retreat, and it could prove quite refreshing. Self-directed courses would cost less as would a backpack retreat into the backwoods where one could commune with the Creator and wildlife.

* **A fact-finding tour**. This may involve something you wanted to do such as discovering a relative's burial site, visiting a local history site, stopping by museums or battle sites, getting

reacquainted with a distant friend, or learning local history.

* **A pilgrimage for spiritual renewal.** You may have wanted to engage in a pilgrimage for favors received or in hope of some way of handling an emerging or continuing health problem. The pilgrimage could be taken by walking or biking or a more conventional mode of travel; there could be fellow pilgrims (informally or through a planned tour) or the trip made alone.

* **Citizen environmental monitoring** may prove to be a vacation (for site selection or data gathering) for some and a necessity for those desiring to complete a project. Those committed to training citizen monitors in areas of noise, water, wetlands, roads, forests, rivers, and other environmental areas are hard-pressed to identify qualified data collectors.

3. Selecting Ideal Quiet Space

We look for sanctuaries of silence in hidden and forgotten places, formal worship or retreat space, or in the crannies of libraries or homes. Silent space is our ideal arena for reflection and concentration, and for precious moments of just getting away. Some go to woodlands where others would never venture; others find their favorite silent space in formal retreat houses or grounds and are willing to pay for the privilege of using the facilities.
Others seek a temporary or permanent second abode that they find ideal to withdraw from the demanding crowds. A temporary dwelling place could be a camping tent, an economic choice for those who do not have the resources for another permanent abode. However, some find the camping chores, gnats, bugs, wood smoke and rugged terrain a little too much or too close to work. They want a spiritual experience that is not necessarily chore-ridden or involving extensive physical exercise and find certain amenities conducive to cultivating inner peace.

Perhaps the unsettled conditions of the late Roman Empire, a time of the establishing of hermitages in the Egyptian desert, are repeating themselves today as our culture crumbles. People seek solitude in woodlands, desert, coastline, houses of prayer, or their own upper rooms. They seek a broad diversity in location, accessibility, simplicity, degree of privacy, length of stay, and availability of services. See Chapter 20 in *Healing Appalachia: Sustainable Living Through Appropriate Technology.*

Selecting an Ideal Place. Choosing a specific site after the general location has been determined may come easy to some. If this specific site does not have to be decided immediately, then consider a temporary retreat location (for instance, a platform on which a tent is built for one or more seasons). When

in the course of periods at the site another nearby site turns out to be more quiet, more scenic, more breezy, less humid, or more cheery, nearer to roads or water, etc.) then the move to a more permanent site does not take much expense or time. Ideal characteristics in selecting a retreat site include:

Tranquility -- Silence is golden -- and a tranquil place is a most desired characteristic of an ideal site, even more so than a scenic view. With that in mind any ordinary camper is fairly quick to size up a rest site for an evening. When motor homes are lined up wall to wall and children full of pent up energy and exuberance are running about, a good guess is that the night is going to be half spent in conversations and laughter by ever too nearby parties. Thus the choice of a spot where others are not in proximity or where camp regulations are strictly enforced (not almost known at first appearance) is always of utmost importance. When tranquility is the primary criteria, packing camping gear to a more remote location at popular camp sites proves a wise decision. Selecting locations at a distance from busy highways or flyways near airports is also quite wise. Sometimes certain periods of the year may be more busy with noisy water sports on nearby lakes or rivers. Determine recreation activities before you make the final decision to rest at a spot.

Note: Of course tranquility plus scenic beauty is always more desirable, but one should remember that scenic sites may be within walking or driving distance and could be thus secondary to the exact resting site location.

Accessibility -- A second consideration for many who are limited on time or energy is difficulty in reaching a site. In our motorized age this generally means auto-accessible, though ideal scenic choices may increase when we consider foot- or bike-accessible places. How close the place is to population centers and to major highways is always a major consideration. Some want to know that there is a local access road available. Some wish to park and pack in, whereas others find this too burdensome. Retreat site choosers ought to know that such local roads are often open invitations for drinkers and others who cruise the public byways -- and thus intruders are more likely where access is more convenient.

Note: Environmental critics are afraid that we are encouraging people to put up permanent establishments in wilderness areas. Remote does not mean wilderness as such, and this country has far more remote areas than authentic wooded wilderness. What is needed is something outside of sight of other inhabited places. Thus rustic rural areas abound within an hour or so of population areas. "Remote" may mean the heart of the Rocky Mountains for some, but somewhere away for others. Within Estill County, Kentucky, where I reside (one hour of travel time from Lexington) there are perhaps hundreds of such remote sites, and

the county businesspeople would be most interested in supplying retreatants with provisions.

Prayerfulness -- Choose specific sites that are prayerful places and move one to spend time. We may say "spend time alone," except that isolation is so distracting for many people that we must make exceptions. Many, with images of black bear, snakes or raccoons invading their privacy, do not like total isolation and find it disturbing . Nature is threatening for them and such wildlife possibilities disturb their tranquility. We thus speak about people who desire "relative isolation," which means near but not within intrusive proximity to other people. Many people want other serious-minded folks to be near at hand in case of possible emergencies. Actually, alternatives may consist of guard dogs present or the availability of people who are slightly distant but within easy reach through cell or permanent phone. Sites that accommodate more than one person may prove more prayerful; for much of urban America the isolated hermit's life is a rarity. This is also reason why some people should be encouraged to use the many good and accessible formal retreat facilities rather than to focus on a build-it-yourself site.

Availability of auxiliary services -- Solitude is an ideal thought but hard on those who are used to amenities of life. Social interaction with others is part of what they desire. They may find preparing one's meals as a distraction and prefer the joy of a group celebration at parts of the day or week. Maybe even bed-making and room-cleaning are part of expectations. The answer is that such retreat facilities already exist at reasonable prices and should be patronized. The important goal is the rest and what one can afford to acquire it. Sometimes the rests may involve bed-and-breakfast facilities or the home of a relative -- but not being intrusive is a sensitive consideration. Much depends on the ability of people to serve themselves or their desire to have assisted living conditions when pursuing their rest.

4. Silent Living Space -- Permanent Housing

People wish to improve their living space or move to quieter surroundings. Such an important decision involves a number of factors depending on the individual or family circumstances: affordable existing or planned residence with respect to purchase price, insurance rates and property taxes; proximity to work, school, church, shopping center, or modes of transportation; scenic views of new site; topography and climatic conditions of the building site (flood- or hurricane-prone or fire prone wooded area); sufficient space for garden and other outdoor activities; restrictions on land use and home maintenance by local regulations.

One additional often overlooked factor is external noise levels resulting from traffic congestion of various modes (air,

road, highway, waterway). Just how strong are the sound levels? How well are they dampened by summer vegetation, by hills, by distance from the home site? Are there times of greater noise impact (vacation season or air flights in morning or evening)? Decision-making may not allow for several season auditing as described above. The real estate agents may minimize noise impacts as may neighbors unless one finds a rather honest evaluator. Common sense assessment could answer this question about as well as nearby residents.

House design. In coming to decisions as to specific residence a host of other factors beyond general location should be considered, as any house buyer or builder will testify. Basic housing design and planning can result in a far quieter residence, if one is building from scratch. Underground houses could be some of the most quiet even in noisy areas, but some residents do not like the claustrophobic conditions of living underground; however the tunnelling of natural light to the living areas may provide some remedy. This may take creative architectural design.

A semi-underground house may prove more satisfactory, for it can afford quiet space and make use of earth-insulating effects. Berming is also important, as it does not give the sense of total residence submersion but still provides the benefits of insulation and some exterior sound-proofing. Walls of above ground abodes can be made with materials near at hand: cordwood, earth block, or cob material, all of which can dampen noise to some degree. Perform an exterior assessment to determine the proper orientation of the building in order to provide quieter living space. Keep the structure small and cozy and perhaps designed with a loft sleeping area to conserve downstairs space. Install renewable energy features and simpler types of utilities (compost toilets, wood stove, solar path lighting, cisterns, etc.).

Interior design. For noise sensitive planners much depends on the placement of rooms within the structure. Here spaciousness of the particular room, natural light, and ventilation are all first hand considerations. But again, do not forget acoustics. Much depends on the number and needs of potential occupants. If there are toddlers or youth, room placement will be somewhat different than it is when one or two adults are the principal occupants. Building designers can place closets and storage space as dividers between bedrooms to reduce the penetration of sleep area by interior noises. Designing special reading, study, recreation and eating nooks is well worth the extra time, if such versatility in space arrangements is feasible. The segregation of noisy areas in appended or separated building or basement areas is all the better. In space-short circumstances, a judicious rearrangement of furnishings, fabrics, even hanging clothes can provide some sound-proofing. Here some creativity in interior

design will prove useful.

Exterior vegetative design. A house set back in a wooded area is obviously more suitable to lowered noise levels than one in open space. If such a luxury is permitted, plan what trees are desired and plant them as soon as possible. Select trees with windbreak potential (dense evergreens for example) and deciduous varieties for maximum sun in winter and shade in summer. But some consideration should be given to sound barriers in areas where traffic noises prove distracting. Considering a simultaneous mix of fast-growing trees for more immediate vegetative cover and slower growing ones, which mature slowly (oaks, chestnuts, etc.).

Community Patios. Individual space requirements in urban America does not allow spacious patios except for the upper class residences. However, pooling land among a cluster of homes or condominiums is workable for many medium-range residences. These areas would be partly or totally enclosed within the built living space and would contain a common "vegetative zone" or patio space. Trellises add to the quieting effect, as do gardens and fruit trees. The common lands can be enriched with flowers, shrubs and miniature fruit trees and a water fountain thus providing a cool exterior gathering place in summer and a haven for wintering birds to be observed and fed. A recirculating fountain, waterfall or fish tank can furnish a soothing effect of gurgling water, which harkens back to our primitive roots in the sea. Along with being water sources, ancient public fountains were public meeting places for neighbors -- and modern ones can be so also. Running water reverberating on stone surfaces along with vegetative surroundings invites people to congregate, rest, and relax in its vicinity. A solar pump that runs during sunlit periods is low cost and energy saving. Flow rates may be adjusted during dryer times to reduce evaporation.

Vegetative privacy barriers dampen external noises and give a sense of intimacy to an otherwise indifferent environment. These barriers need not be concrete walls but can be of wood or evergreens or thick bushes. Vegetative barriers are both aesthetically pleasing and cooler in summer; they allow for natural nesting for insects and wildlife; they generally cost less than most constructed "artificial" barriers. In many eastern parts of the country the use of evergreens such as cedar or white pine furnishes a thick and inexpensive natural barrier. In others, such hedges as Manchurian cherry allow for quick-growing thick
vegetative barriers that increase privacy and reduce noise.

Greenhouses. One hardly thinks of the sunny greenhouse as silent space, but often this can be a place to carry on one's hobbies in the cooler months and in times when it is more

difficult to get outdoors. Plants grow even in the non-growing winter part of the year. Designs and types of greenhouses are found in appropriate technology and horticultural literature (see *Healing Appalachia*). Any standard operating free-standing or attached greenhouse could serve a residence well; the presence of living plants acts as an acoustical barrier as well as gives many other benefits such as healthy vegetables and a sense of cheer during otherwise drab seasons.

5. Maintaining a Quieter Home

For many people the home environment is noisy because of active children, electronic devices and alarms and bells of all sorts. Our home is the primary environment outside of our own person where we have an opportunity to extend and preserve harmony. Our challenge is to create a quiet domestic space and extend the benefits to all residents, as well as to immediate neighbors and visitors. This enhancement of silent space may require some positive steps involving home improvements and maintenance practices such as the following:

* Use foam pads under blenders, mixers, keyboards of computers, and all forms of vibrating appliances and instruments. Remember this foam insulating material works well under dishwashers and clothes washers and dryers as well as around banging pipes. One does not have to endure noisy utility equipment (water pumps, air conditioning, etc.). They too can be toned down with insulation.

* Oil squeaky doors and hinges. Door stops can help, and insulate around doors to reduce noise and provide energy savings as well.

* Lay down carpeting to absorb noise especially in second floors of structures that are not solidly built. Hang drapes, heavy curtains, or cloth wall hangings when neighboring buildings or rooms are noisy. Upholstery and furniture covers add to the quieting effect.

* Install sound-absorbing ceiling tile in kitchen and recreation areas as well as rooms where people are disturbed by noise. Sound-proofing material is reasonably priced, but you may discover empty paper egg cartons do an excellent job.

* Lower the volume on phones, door bells, clocks, and other alerting devices -- or turn them off when not needed. Leave the smoke alarms and fire warning equipment and pray they are never are triggered unnecessarily.

* Establish quiet time when the television will be turned off or used in areas away from where others are attempting to rest or

sleep. Note that Christian religious communities have traditionally had set periods of *sacred silence* when the community does not converse or undertake occupations that could generate noise.

* Regulate incoming phone calls to some degree. Get off the telemarketing listing. Dismiss such calls as quickly and politely as your patience will allow. If need be, get a private unlisted phone number.

* Turn the volume down on all electronic media and equipment. Segregate people who like to play or listen to louder music in portions of the house fitted with acoustical materials or in outside buildings if these are available.

* Refrain from purchasing or acquiring noise-making toys for kids, for these can really disturb an entire household and even neighbors. Some noisemaking toys have the potential to cause permanent ear injury. If the noise is quite loud, register a complaint with the toy maker and the Consumer Product Safety Commission.

* Resolve to speak more softly. Often one or another person is hard of hearing, and so allowances must be made for them. A hearing aid helps all, not just the wearer -- but some of us do not want to admit our deafness.

* If some resident believes in scream therapy, insist that it not be practiced except in an absolute wilderness or out in the ocean where it won't startle even the wildlife.

* And don't forget to remove your shoes when coming in late. At least add padded treads on stairs that squeak.

* Be mindful that the immediate exterior of the home is also part of the domestic scene. Noises originating from within or without can also carry to the neighborhood. If there is to be a party or late entertainment, make sure some arrangement is made so as not to disturb neighbors. For the sake of others do not run such events into the wee hours.

* Operate interior or external equipment (power saws, leaf blowers, lawn mowers, etc.) only during waking hours of all residents, though this may be more difficult than at first seems, since people have vastly different sleeping hours. At least alert the neighbors that particular equipment is to be used. And slow down engine settings and dampen where possible. Better, do the grounds care operations without the power equipment.

6. Discovering and Preserving Public Silent Space

Silent space is needed by all people for rest and relaxation and was a condition that was taken for granted in many pre-modern times. With the advent of modern traffic congestion and many noise-making appliances, equipment and vehicles this situation has changed, and few challenge the infringement of noise in their lives. Often the home or immediate neighborhood simply cannot be quieted down and so the stressed individual must find refuge in other locations that are within reach of the general public. Since private cabins or wooded areas or beaches are often "private " or exclusive, other means must be provided to help furnish silent space for the general public. Here the dynamics of providing silent space at the domestic scene takes a leap. We all belong to communities that crave and deserve silent space. Let us become sensitive to those needs.

Assessing public silent space. It is possible that public silent space exists in congested areas but it is often difficult to discover. Such silent space may be found in museums, libraries, cemeteries, historic sites and shrines, and nature areas and parks, in essence, in many places where people fail to look. Such places may include bookstore nooks, coffee house corners, outlying areas of unused land or cul de sacs, and just about any out-of- the-way place that remains unoccupied at a given time. I remember in India after a few hectic weeks with crowds, the likes of which I had never before experienced, I was able to take time off and go to a park in New Delhi where at one location I did not see or hear another human being -- and found this so delightful, especially in the midst of a large city in a very populous nation.

Discovering sacred sites. Communities recognize certain public areas as having special cultural or historic significance and rest-related characteristics: quietness, accessibility, prayerful atmosphere, relative seclusion and beauty. Such sites are more sacred where peace prevails and where our physical senses discover harmony: pleasant sights, sounds and feelings, little used by other people and no litter. An ideal natural sacred space has the scent of evergreens or seawater, the sounds of wind, birds, or rushing water, the texture of rock or tree bark, and the taste of sassafras or nearby berries or fruit. But rapid urbanization of our nation and world does not allow all residents access to such natural sacred sites. People may desire contact with natural flora and fauna -- forests, isolated islands, mountaintops, or rock overhangs. They like shade in summer, wind shelter in winter, ripe fruit and berries to pick, and these cravings ought not to be thought of as exotic. All seek silent space at times and yet some do not have the luxury.

Preserving sacred sites. Once recognized as needed, such sites of rest are worth dedicating through ceremonies, tree plantings, installation of benches, or access paths. Institute a periodic cleanup campaign. Consider creating a flyer informing others about the location of the sacred sites with proper pictures and appropriate texts and get these into the hands of stressed neighbors. Security may require additional regulatory measures: limited access, boundary fencing, lighting where needed, and use only in daylight hours. In our security-conscious world the conflict between secluded public sites and the need for security may never be fully resolved. The trade off is that publicizing such sites may prove to be their undoing as restful places.

Formal Worship Space. Some like to pray or reflect in more formal consecrated worship space, namely, public physical facilities formally reserved for sacred worship. Here the seeker of rest can offer petitions and thanksgiving in a public manner. Most religious cultures have such churches, temples, shrines, chapels and mosques that are conducive to prayer.[i] (See treatment of this by this author, *Eco-Church*, Resource Publications, Inc. 1992). The design and functionality of formal worship space reflects cultural sensitivities. If worshippers are elitist, the space is exclusive; if they are pretentious and showy, the space is gaudy and parades their affluence; and if they encourage all to worship together equally, the space is welcoming, sufficient in size, and receptive. However, attractiveness has no connection with degree of affluence. Very simple worship space may be quite inviting and exude warm feelings. Decorations, access, light, type of building materials, and approaches to the space all contribute to inviting people to enter. Belief in the Presence of the Lord draws people to such worship space even outside of times of formal ritual.

7. Making Recreation Choices

Recreation is part of human life. Everyone needs outlets, whether the children at play or the seniors in animated conversation with others. Merrymaking through parties and celebrations is not an everyday occurrence; however, merry makers need to have a place where they can relax and not be restricted by excessive rules and regulations. Certainly backyard parties are known to get out of hand; excessive drinking may occur; music and singing may go on well into the night; fights may break out. All of this is more than a "may" where young college people are involved. If the locations are secluded, then disturbing others is less likely, but unfortunately the world is more congested and secluded places harder to secure. The entertainments should be controlled and within limits, but that is easier said than done.

The volume of sound generated may vary with health, age and

physical condition of recreating groups. A game of chess or checkers is simply not as loud as the a beer-drinking gathering animated by conversation and song. A host of low-sound-level forms of recreation exist: reading, listening to soft music, hiking in natural or congested areas, photography in natural settings, bird watching in wilderness areas, rock-climbing, jogging or skiing on one's own or in small parties; and non-spectator cross-country racing, tennis, golfing, ice skating; stationary, regular or mountain biking; rowing in an exercise room or canoeing, kayaking, and row boating in motorboat-free zones of water bodies; horseback riding, sailing, regular fishing and fly-casting without the use of motor boats, backpacking and back country camping.

Medium-sound level forms of recreation include youthful playground sports, swimming among youth indoors or outdoors, fishing with motor boats, small-scale spectator sports or those where quiet is required such as golfing, bowling, indoor racketball, some track and field events, gymnastics and acrobatics for fun, non-spectator volleyball and yard games, snow and water sports, picnics and family gatherings.

Higher volume recreation is divided into several classes: larger size spectator sports whether indoor or outdoor; motorized sports whether spectator or individuals using motor boats or jet skis, off-road vehicles, and motor car racing. One's special delight in recreation may fit into this high-volume category, but hopefully such choices should be made while considering other factors as well: human safety, expenditure of resources, and possible threats to wildlife. People engaged in high-volume recreation need to consider all factors and the question needs to be asked of such practioners -- who influences you to like this recreation?

Encourage proper choices. Besides individual safety and health issues, recreation choices should be based on environmental considerations and sensitivity to other people in the vicinity. We can influence recreation choices of others in subtle ways just as we were influenced by corporate and peer pressures. Encouragement comes through engaging in recreation with people who are restricted in what they can perform but who need companionship and social activity (e.g., playing games with shut-ins). One could help direct others' recreational pursuits by giving gifts or literature to individuals (e.g., giving a camera to someone who seems to be attracted to nature photography). One could acquaint others with forms of quiet recreation (e.g., participating in camp outs or nature hikes).

Discourage Noisy Recreation. People suffering from stress-related conditions should avoid recreational activities that

require motorized equipment (motorboats, off-road vehicles, dune buggies, motorcycles), those high thrill sports that could be dangerous (hang-gliding or bungee-jumping), those that have a major impact on the environment (rock climbing using spikes), or those that generate considerable noise (bowling at commercial establishments with hardwood alleys or high-volume rock concerts). Alternatives as those mentioned above in the low-volume category are just as enjoyable once undertaken -- but peers may object. The problem of high-volume recreation events could be the subject of upper grade and high school social studies and environmental classes. What do we do about it?

Caution spectators. While spectators support sporting events, noisy spectators catalyze further noise, often in an effort to befuddle the opponent of the side for which they are rooting. For a person who is stressed and seeks a recreation outlet, a spectator sport is not always a remedy. Sports may prove more stressful for spectators than for players and this often happens when observing on television rather than being actually present (heart attacks are known to occur at times when watching sports). The spectator is often frustrated about wanting to do something to influence the outcome and yet being unable to do more than yell. Often the more active the sport (hockey, basketball or football), the more stressed the spectator. Spectators away from noisy cheering sections may be less involved but even more stressed at crucial times in the event. Due to the enclosed space of sports arenas, the volume of noise can become deafening. The noise level may be large in outdoor events especially in large stadiums where the sounds can reverberate. Cheering sections enhance the sound level through generous use of drums and horns. Being next to the drums or horns as in any rock concert could do permanent damage to the ears as noted, and could also be harmful at sporting events.

C. Sound Reduction through Technical Innovation

A step beyond individual or small community choices involves taking broader-ranging technical approaches to sound reduction. But technical innovation is often more than a domestic or small community project, for capital investment, jobs, service centers, research and testing, and technical applications are involved. Rather, sound pollution challenges us all to go beyond escaping from the excessive sound or discovering and preserving peaceful domestic environments. Technical solutions are not the full story but they are a key part of the answer to large-scale sound pollution problems. If we are successful at the home and community in curbing noise levels, we ought to step forward to a more public investment in our energy and time in the broader public interest arena.

Citizens can effect change from their home base without moving to a state or national capital. Certain actions can be advanced by citizen pressure: writing letters to the editors or becoming involved in specific public interest blogs; discussing improvements in design and regulations with politicians and corporate groups; participating in political action committees; supporting candidates who are interested in sound pollution problems; and encouraging people who suffer from excessive noise to call for sound barriers and more trees. Technological innovation can most certainly be advanced through citizen advocacy and intervention. Such innovation can involve absorbing the sound by dampening the sound waves that are being carried in the air; transmitting the sound; reflecting the sound to a hopefully less sensitive location; or causing the sound to take a longer route over or around a barrier that has been constructed.

1. Sound Barriers

The most pervasive sources of excessive sound in our modern environment are associated with transportation. Sound or noise barriers are popular for residential homes to ensure privacy and for residential communities along busy highways. The general rule is that mass dampens noise best and so heavier walls with greater mass are generally sought. Private homes often have tongue-and-groove board barriers to block traffic noises. It is impossible to construct overhead barriers to shut out approaching or departing air traffic; however, the sound of highway traffic at ground level can be reduced by as much as half though not all the traffic noise can be blocked. The U.S.Department of Transportation's Federal Highway Administration (FHWA) reports that barriers can reduce noise levels by 5 to 10 dB, cutting the loudness of traffic noise by as much as one half. Behind such a barrier a tractor trailer sounds like an automobile. Cutting the line-of-sight through a barrier cuts noise by up to 5 dB and then there is a bonus of about 1.5 dB additional noise level reduction for each meter above the receiver in wall height.

The ideal is to have the barrier elongated and with no openings -- but that is not often practical. The objective is to reduce nearby traffic noise through a barrier but not increase noise on the opposite side of the road. Such sound barriers can be rather attractive earthen berms or less aesthetically pleasing vertical walls constructed of a number of materials, or a combination of berms and walls. The berms can reduce noise by as much as 3 dB more than vertical walls of the same height. However, as is obvious, walls take less space than wide berms, but these constructed walls are limited to 25 feet in height for structural and aesthetical reasons -- and they seldom reach such heights.

Berms and vegetation. Planting bushes and trees on the berm is perhaps the most ecological way to protect from persistent noise. Vegetation adds beauty to an otherwise barren earthen wall and costs little to install. However, vegetative barriers with few exceptions do not have the mass needed to be highly effective sound barriers and they take time to grow, which is a drawback for those suffering from the traffic noise. However, vegetative barriers do not take precious resources as do concrete, wood or other constructed walls. And it is far more pleasant to drive through a barrier of trees and greenery than through what appear to be prison-like corridors of constructed sound barriers.

Pros and cons of sound barriers. Noise-troubled communities may prefer barriers to vistas, that is to be walled in rather than to see out to scenic vistas where the traffic arteries are out of sight from the windows. Vegetation-covered earth berms but not the concrete, masonry, wood, metal and other constructed sound barriers can be quite scenic. However, aesthetics is not the only consideration when it comes to sound barriers. Rigidity, durability, ease of construction, construction and maintenance costs, and total mass (to be more efficient in sound reduction) are all factors in coming to a determination. Concrete formed to appear like laid rock wall can be attractive.

For some residents the added benefits of sound barriers include keeping wildlife and uninvited trespassers away from these "gated" type communities. For the safety-conscious residents, the prison-like unscalable barriers give those inside safety plus freedom to come and go and yet exclude possible intruders. Concrete and metal for walls take energy and other resources and have less aesthetic quality. Wooden walls are more attractive but require many trees, though a renewable resource, and absorb slightly more noise. Other assets of sound barriers of any type are cleaner air, a feeling of rural life, longer periods of quality time to spend in the yard, and healthier yards because of less vehicular pollution.

Negative features. Walls may not be pretty; they change the aesthetic character of a landscape. Likewise walls cost money and only a portion of a community usually desires noise relief. Residents closer to highways are more vocal; those farther away would prefer the open vistas. All affected residents soon discover that there are no federal quantitative guidelines for when a noise barrier must be built along a given highway. However the federal government honors the construction of these barriers at the request of the respective state highway departments who make the final decisions on when and where to build them. Such barriers may be paid for by state, local or private funds with some federal matching funds depending on a number of

considerations. Acoustical differences in a community soon teach a lesson; hillside and hilltop homes cannot be protected from land -- any more than from air -- traffic noises. Some residents near walls complain of restricted views, loss of sunlight and lighting, and less air circulation on muggy days. And there is the added negative feature of maintaining the walls over time. The addition of graffiti is always a potential problem but some of these art works only manifest the desire to overcome the disfunctionality of conventional urban communities. And besides, with forethought easily washed or painted walls can be installed.

2. Urban Forests

Experts admit that vegetation strips that are high enough and broad enough will decrease highway traffic noise. This is very true where there is a thick undergrowth. The FHWA says that thirty meters of dense vegetation can reduce noise by five decibels.[ii] But one must admit that such urban tree belts are luxuries that cannot be afforded by every community. The value of existing vegetation has been recognized in both rural and urban areas but vegetation often succumbs to urban development. Recall the shady lanes of rural villages and the tree-lined streets of small town America. However, few tree plantings with all their benefits (shade, beauty, etc.) are done to reduce land-based noise and yet over arching trees can have some effect and even reduce air traffic noises.

Urban forestry must again become a goal of our metropolitan areas. Unfortunately, urban tree cover has decreased due to development and to trees being victims of pollution, along with a failure to replant those dying from old age. San Diego has lost one quarter of its tree cover, Washington, D.C. half and Chicago and Philadelphia even more.[iii] This is equivalent to what is occurring in the rain forest and the loss includes less cleaning of polluted air, retention of rain water, and shade which would stop the heating of hardened road surfaces (could reduce temperatures up to eight degrees). Today's global warming and energy conservation consciousness makes urban dwellers realize that trees translate into less air conditioning. Do not forget the added advantage of foliage for dampening noise.

Tree planting programs are encouraged by civic, religious and school groups as well as on a metropolitan level. For instance, Los Angeles plans to plant one million trees over a thirty year period, although the city realizes that benefits will be rather slow to accrue. Several types of trees are more advantageous for urban forestry and the ones with heavier foliage are favored. Traffic tolerant evergreens can be favorites since they are laden with greenery year-round. Some managers and homeowners do not like falling leaves and fruit or nuts and so prefer light leafed

deciduous trees or evergreens.

Selecting trees that are pollution tolerant should be less a factor as stricter air-pollution and especially ozone standards are enforced. The target areas of a city for urban forestry are all over -- residential areas, roadways, cemeteries, malls and parking lots. All could use tree strips, strategic tree islands, or trees interspersed in open space. Maintenance crews or owners of parking areas in the snow belt often object because it is hard to negotiate trees and tree islands -- but global warming will mean less snow. Trees have too many advantages to allow small inconveniences such as collection of fall leaves or hindrances to snow plows to stand in the way of massive urban tree plantings. And over time the noise levels should decline.

3. Traffic Controls and Transportation Sound Abatement

Since transportation is the major source of modern noise, more attention is focused here on this sector than on domestic and industrial sound pollution. Let us look at general traffic controls, the internal combustion engine, and the surface and placement of runways and road routes. Modern planning and technology have developed certain acoustical techniques that are being implemented to lessen the impacts of traffic noise. However, engineering innovation is not developing fast enough to compensate for the rapidly increased volume of land, sea and air vehicles. In a matter of less than a decade, Moscow, Russia, has become grid-locked by the rush to the private automobile. So has Bangkok and many other Asian cities as well. And unfortunately from an ecological standpoint, Chinese customers are forsaking the bicycle for the auto by the millions each year. Expect more air pollution and urban gridlock. Air travel and sea transportation are likewise growing by leaps and bounds and thus the associated increase of noise levels along with other forms of pollution.

Better traffic engineering of highways is one obvious answer but this takes time and money, and studies have shown that these improvements generally only invite more auto and truck traffic. Urban areas are tackling this increased traffic through a number of means:

* **More and better public transportation** reducing the number of vehicles and replacing them with trains and buses means less noise. Some people do not like the increased time that it takes to move in public modes of transportation and so opt for the convenience of the private car. Special lanes for public transportation help speed the bus traffic and more frequent and consistent scheduling improves this mode of travel.

* **Expanded bike lanes** reduce noise where people live

relatively close to their places of work. Some cities even furnish bikes to move from one part of the city to another, but much depends on the willingness of the users to share and follow parking and maintenance regulations.

* **Traffic controls** at the entrance of highways through stop-and-go signals and general speed controls can help as well. The more even traffic flow may reduce irritation but hardly reduces noise; heavy congestion can actually reduce noise except for the cursing within vehicles. A better traffic control scheme is to charge heavy tolls at incoming bridges or tunnels (New York) or levy parking and inner city travel fees (London).

Car pooling has been encouraged for decades in many cities and is helped when vehicles of two or more passengers are allowed to use certain lanes in coming to and going from urban centers. Recently, this practice has eroded by allowing individual cars to pay extra heavy tolls to ride the fast or now "affluent" lanes. Building car pooling parks in suburban areas allows for people to meet at central points and saves driver pickup and let off time.

Home working schedules are now permitted by certain corporations and are becoming popular for people who would otherwise spend hours in the hassle of commuter travel. Incidentally, modern modes of communication are making obsolete daily congregating at office sites when the same operations can be done at home. This again lowers car travel and noise.

* **Moving closer to work** is obvious but that is the hardest strategy to implement, for it means reversing the half-century mass movement of people to the American suburbs. However, with the gentrification of homes in urban areas, the costs of fuel and commute times of from two to four hours (and the toll taken on nerves) are so great that the idea of living closer to work has gained popularity.

* **Airline traffic controls** are a puzzling part of the noise reduction patterns. Nighttime departure and arrival have become a major concern for residents near numerous international and regional airports. So often the tight restrictions on scheduling make it imperative to spread arrivals and departures over a wider time span and so airports extend flight service time to reduce the congestion. Planes in long holding patterns also add to the noise and so passing airplanes through the air space around an airport expeditiously is always a prime consideration for the passengers and service personnel -- and for the local residents as well.

Engines and Motors. Electric vehicles are on the way again and these are quiet -- but a major portion of that generation of vehicles is not here yet, and that is disquieting. Through

prodding by governments and citizen public interest groups, efforts have been made by manufacturers to quiet land vehicles and airlines. This is acknowledged to be technologically feasible, but at an additional expense. A better acoustically engineered aircraft costs additional money but the increase is small compared to total passenger plane costs of tens of millions of dollars. All in all troubled airlines are plagued by higher fuel costs and certainly do not want to discuss noise suppression measures. No question, jets of comparable size are becoming quieter with each new entry but this is offset by the increasing size of Airbus and Boeing passenger planes and airline fleet policy changes as well as by the increased volume of airplanes at many airports. However, service personnel want to work with or on quieter planes, and passengers may start to choose the quieter ones for travel.

Life near airports. However, the greatest benefactors of reduced aircraft noise will be residents underneath or near take-off or landing paths for busy airports. Granted, aircraft noise varies with number of aircraft, the type of airplane, the manner of flying the craft, and the weather conditions (wind direction and speed, and humidity). Sheer volume of traffic versus acoustical improvements is an important factors for long-suffering residents under runways who find their quality of life reduced along with housing prices through excessive airplane noise. The cost of retrofitting quieter engines is regarded by the industry as exorbitant and so the residents need to await slow changes over longer time spans as a future quieter generation of aircraft appears.

Quieter recreational vehicles. Air travel may be more "necessary" than purely recreational land vehicles that are engineered to be revved up and made more noisy by macho drivers. With recreational vehicles it is more a question of what is allowed than of what is possible. Electric go-carts are so quiet that they surprise both driver and pedestrian, and proper acoustical engineering is possible for the off-road internal combustion vehicle. We must realize that purchasers often want noise and the manufacturers are willing to give it to them. The demand is for noisy vehicles as a show piece, and nothing stops spoiled all terrain vehicle brats, certainly not manufacturers who are out to meet demands -- and gain profits.

Quieter trucks. The trend is to cut noise in all vehicles, and here the truck transportation sector could have the greatest effect. With the recent loss of popularity of the SUV some reductions will occur in choices of auto alternatives. The trucks could be quieter but that means an added cost in design and production, and again private large and small trucking firms like to cut costs and do not regard noise suppression as a high priority. Increasing fuel costs turn attention to engine

efficiency rather than sound but the two could go together.

Efficiency and Quietness. Tightening of the CAFE energy efficiency standards at the national level will ultimately advance the cause of the quieter car. The original introduction of electric cars at the start of the auto age in the early twentieth century meant a quiet vehicle. But the pressures of petroleum companies displaced that early attempt with the internal combustion engine (ICE). However, noise was not a deciding factor for the mere cackle of the small ICE engine was quieter than clanging horse harness, squeaking wagon wheels, clopping hoofs and teamster curses. With time the trucks and autos gained in number and certainly in power per unit, and with it came the hum and then the roar of more sophisticated vehicles. With power came speed and fast pickup and squealing tires and brakes -- and less fuel efficient vehicles. Then came global warming and climate change.

Thinking green today means hastening the replacement of the ICE by electric vehicles that have no engine or exhaust system -- or exhaust gas either. That has already been partially initiated by the hybrid car and certainly by the less numerous solar energy-derived electric cars. Both the partial and the total electric vehicles are considerably quieter and in fact can match the quiet condition of bike rush hour in Amsterdam -- a faint sound that I experienced once and will never forget. If there is a disadvantage to a return to fuel efficiency as a main determinant in travel modes, it is that blind people complain of not being able to detect an approaching electric car as they were able to do with the noisy ICE varieties. There's nothing perfect in this world -- and engineers can produce warning devices for moving electric cars for blind folks.

Road surface and design. Traffic controls and engine and exhaust design can only go so far to reducing noise. An additional transportation noise factor is surface of road ways and, to a lesser degree, runways at airports. European traffic engineers have recognized the noise difference in pavement materials from concrete to blacktop to cobble streets. We realize that the roads of eight decades ago were quite often dirt or macadamized, both of which called for slower speeds and thus far less noise. Increasing speeds have meant increasing noise to a point that over 60 miles per hour one is reaching a decibel number similar to speed in miles. Thus shutting windows will reduce the noise for the occupants of the vehicles, but the noise is still out there for others to hear.

Better engineering of highways is an added factor in reduction of traffic noise. To eliminate curves and cut the steepness of inclines have been goals for years on high speed highways, but these usually lead to faster speeds and higher

volume unless curbed by speed limits (here Europe is also starting to impose traffic speeds similar to America's). So much depends on volume of vehicles and especially trucks. In recent years the widening of Interstate highways at the expense of the elimination of median strips and the removal of trees near major highways have added to traffic noise. The so-called "New Jersey" concrete barriers dividing traffic lanes actually help bounce the noise back into the lanes where generated. The only blessing of increased highway congestion with its loss of time, fuel and patience is that reduced speed and tie-ups bring about less noise for certain periods of time. Blessed peace, but at what expense?

Engineering planning and design for airport placement and runway length and direction are major community undertakings. The ultimate costs may run into the hundreds of millions of dollars and residential communities suffer immensely from poor choices. The fact is that airports often start away from the cities but the cities come to and spread around the airports. Proper land planning should involve widespread participation and citizens should sound off effectively early in the design stage. Good luck!

4. Machinery and Domestic Products

Somewhat more remote from the citizen actions sought in transportation technological innovations, are industrial and consumer products that suppress noise in key places. In earlier times in the industrial age, noise like chimney smoke was the sign of progress, important business activity, and enhanced employment. However, both smoke and noise are now termed pollutants, and so the movement to quieter devices is not limited to airplanes and automobiles or to roadway and airport design. In fact, the noise disturbances are so massive and numerous, that conscientious labor union and citizen groups have pressed for a plethora of governmental regulations related to industrial noise.

Dampen the noise from hammer mills to water pumps, from plastic grinders to stamping devices. And this has happened to a great degree through insulation, padding, and innovative machinery design. Occupational Safety and Health Agency (OSHA) regulations are in effect concerning noise levels. However, critics of globalization say that noisy industry has often moved on to other nations and assembly-line personnel are still subjected to immense noises far removed from any OSHA jurisdiction. Has the noise level per consumer item produced actually declined? Most likely not.

Concerned consumers call for quieter products. However, anything that can produce a loud report also has a volume dial that can now blast the world with someone's hard rock music choice or computer game. This amplifying dial is the key and it has

greater impact than the design of the consumer product as such. However, where attention is given to children's toys and games, there is always need for reduction in sound levels. Thank heavens, the earlier twentieth century clanging typewriter is a thing of the past. We need to mention again that the home is full of noisemakers that need to be insulated, padded and some (water pumps, etc.) even placed outside of living areas. Sheer numbers of these devices tend to negate quieter technologies per unit.

5. Interior Acoustical Materials

Many materials such as special tiles have good acoustical properties and are widely available in the housing materials market. These can be available for home improvements ranging from the kitchen alcove or the television room to the study area. The proverbial empty egg cartons are certainly low-cost acoustical materials that are ordinarily regarded as waste products. They can be cut, fashioned, painted, dyed and arranged in an artistic manner with a little time and effort. Even existing materials in the domestic scene such as garments, bedding and drapery materials can be hung and arranged so that certain areas are more quiet. Book cases and stored files can be arranged to improve the quiet study cubicles or sleeping space. Putting noisy equipment in an auxiliary space removed from living areas as well as dampening them with padding and insulation can reduce noise. Generally, a more fluffy natural fiber is a good dampening agent, but some synthetics are now available that have the same acoustical effects. Scrap fiberboard can come in handy here for the do-it-yourself innovator.

Who has not experienced the disappointment of a motel or hotel where the conversations next door or the street noises penetrate the room and disturb the needed night's rest? Isn't that why the place is a bargain? Yes, heavy drapes and triple pane windows can keep out external noises, but they are expensive and do not always cut the sounds from the guest room next door. And good rugs and wall hangings can help but the place was not built to contain noise for that would have added expense to the building. Make noise reduction a major consideration in choosing overnight lodging (similar to camping site choice). And furthermore, make it a prime consideration in refurbishing your own guest room and other areas of the home. Traditional acoustical tile should be used in dropping ceilings. Acoustical wall materials can be added when putting on home additions and improvements. When these are built into the improvement project, they add relatively little to the home improvement cost.

Interior sound transmission blockers. One commercial acoustical product for ceiling and walls is *Audioseal*; this fused vinyl material is sold by Acoustical Solutions and is very dense

or about one pound per square foot and costs about two dollars per square foot (2007 prices) as non-reinforced rolls. The price increases to three to four dollars per square foot when coming in reinforced rolls. While this and other acoustical home supply materials are generally used in new construction, they are also available for retrofitting structures with noise problems.

Sound enclosures. Many institutional and even domestic structures have air conditioning, water pumps and purifying equipment, outdoor by-pass pumps, natural gas compressors and heating and ventilation equipment that cause the building to be noisy and sometimes even appear to vibrate. Such noises can be horribly distracting especially for visitors. Often this equipment is installed on the roofs or in basements or utility rooms in proximity to where people live, study and sleep. A few pieces of cardboard near the equipment do not help. In such cases, sound enclosures with insulating materials that significantly contain and dampen the noise may have to be installed.

Institutional interior improvements. Multi-purpose rooms, gyms, cafeterias, and auditoriums are known to reverberate with the thump of basketballs, the animated talk of gathering and departing crowds and the echo effect of occupants. Far better than trying to quiet the more natural intercourse through signs and regulations is to install an array of construction materials such as acoustic foam wall panels that can be installed where bare walls reflect the high volume sound. Unger Technologies of Noblesville, Indiana, and other specialists in acoustical controls for industry offers a line of items for churches and schools that includes ceiling baffles with grommets for ceiling suspension to reduce "echo" effects, fabric wrapping and ceiling banners for excellent sound absorption, and duct lagging for noisy pipes that can bother many people. Such institutional improvements may be necessary for the tranquility of office personnel and others wishing to use the place as clients.

D. Advocating for Sound Control Regulations

Citizens are encouraged to be vigilant about the infringement of silent space by polluters of every stripe. Some of these certainly are to be controlled at the source within the communities, but some evade community regulation for a variety of reasons. These citizens are often annoyed first by the noise, and secondly by their seeming powerlessness in the face of such excessive sound pollution. However, things can be done, for this is a democracy and citizen action can be effective when properly focused. Technological innovations are not the complete answer though they can dampen localized noises along with motorized and other noise-makers. Local police enforcement of regulations can

be effective but this means that the specific regulations are in place
and the need to curb the noise is legitimate.

1. Advocacy Work by the Citizen

Creating and monitoring noise enforcement regulations takes citizen action at a reasonable level -- and this requires proper discernment. Often merely talking with noise makers could result in some reduction and so that more simple route is always recommended before the phone calls to the police. Advocates who want quieter neighborhoods can take a more broad-based approach that includes some of the following steps.

* **Act now as citizens.** Advocates are the modern minutemen or minute women who detect the need for action and respond promptly. However, this is all easier said than done for advocates are often looked upon as mean spirited fuddy duddies or cranks who want to restrict merrymakers having some clean but noisy fun. However, advocates who show a reasonable degree of tolerance for some occasional loud sound need to be sensitive to others in the neighborhood who suffer in the same situation in silence. Know when to speak or remain silent.

* **Organize locally.** Acting individually at the local level can result in being highlighted as a crank and ignored. It is far more effective to operate as a group. Though national and larger groups need our support, better noise abatement at the local and regional levels can have telling effects in an age when so many other global environmental problems compete for the federal government's attention. Starting at the grassroots with a local organization has a reasonably good track record for dampening many of the forms of sound pollution that affect us.

* **Write letters-to-the-editor** and talk to others over the Internet, where more civic action seems to be heading. Citizens come to understand that others suffer from excessive sound just like they do. This encourages more citizen action and thus can start a groundswell.

* **Challenge bull horn** politicians or commercial organizations to quiet down their advertising and show that it can actually be counterproductive to what they seek to achieve.

* **Initiate school projects** to audit a neighborhood's noise as a way of making youth aware of the dangers of noise, and in order to expose the sources of community noise problems. Grade schoolers can do this as science projects using a noise meter and some faithful recording of places and times. Sensitivity to noise problems can be initiated among youth who are often far more

tolerant of noise because they help create it.

* **Create public service announcements** for these are often some of the best low-cost methods of spreading the word. This may consist of just telling how much noise hurts those who are ill or elderly or how it adds to the tensions of everyday life.

* **Support the Noise Pollution Clearinghouse** (NPC) that is trying to raise awareness of noise pollution and is helping communities take back the commons from those "acting like bullies. The NPC has built a library of resources and tools concerning noise pollution. They have established networks among noise activities and they advocate for stronger noise controls <www.nonoise.org>.

* **Promote Noise Awareness Day or Week**. The idea of a Noise Awareness Day or Week is not new but it is of limited observance. A London, England-based organization is promoting a period in the last full week of May (2007), but observances could differ in time and places. Seeing that the occasion is publicized and proclaimed is the major citizen action.

* **Organize civic talks.** Silence is like motherhood and apple pie. Who will challenge it? Thus unlike other environmental subjects that can become somewhat partisan due to economic interests involved, most accept that noise pollution is in essence a matter of environmental concern -- but not as deep a concern as air, land or water pollution. People may feel self-conscious because they have helped create noise in the past. However, many experience the effects of noise and know people who suffer more deeply because of it; these experiences become the personal stories that could captivate an audience.

* **Seek co-sponsorship** of community events. Health awareness in all its forms is a popular subject for booths and informational talks at larger meetings and events. A major health group is in favor of publicizing the effects of noise pollution, namely, those selling the hearing aids, and into audio-health and noise prevention. Furthermore, hearing impaired people may be willing to assist in some community projects.

* **Balance action with tolerance.** Cabin fever affects many people in late winter; a little extra spring shouting and noisemaking could be tolerated; the rare high school state tournament winners deserve a parade; a graduation party is once in a lifetime; a family reunion is only every five years. For people to fault the making of a little noise on such occasions does not do justice to citizen advocacy -- in fact, it can belittle it and lead to lax enforcement due to the police siding with the merrymakers.

If the winning team triggers a mob smashing downtown windows, the limits of tolerance are exceeded. A delicate balancing act is in order. Boisterousness can grow especially in relation to sporting clubs that have a wide variety of followers. People need to size up the situation quickly and understand the temperament and mode of the crowds. Where drinking occurs, trouble could soon follow. It is better to be ready but not to discourage honest merrymaking.

* **Calm the cranks.** Some of those with hearing do not want any type of excessive sound -- and to cater to them excessively could hurt -- not help -- an anti-noise crusade. For the sounding off of the cranks can be a form of "sound pollution." Outdoor recreation affords the opportunity for participants to obtain full spectrum sunlight and fresh air and to let off steam. An occasional shout need not be protested instantly, for some room must be allowed the occasional noise maker. Cranks need to be detected and calmed down and that is part of quieting a neighborhood.

2. Federal Regulations

Of the three major classes of noise sources (industrial, transportation and neighborhood), the federal government has given attention to the first two. With the advent of the environmental movement in the late 1960s noise has emerged as a pollutant though not on the same level of importance or widespread regulation as water or air pollution. The federal government has always deferred to local governments to handle neighborhood disturbances, for that is where they can best be handled. The federal government has generated documents to provide a basis for state and local governments' noise level standards. Federal actions with respect to noise date from the *National Environmental Policy Act of 1969,* which would require environmental impact statements on major actions that deviated from normal practice.

Environmental Protection Agency (EPA). In the past, the federal EPA coordinated all federal noise control activities through its office of Noise abatement and Control. An EPA "Levels Document" in 1974 identified the 24-hour exposure level of 70 decibels as the level of environmental noise, which will prevent any measurable hearing loss over a lifetime. Likewise, outdoor levels of 55 decibels and indoor levels of 45 were identified as preventing activity interference and annoyance during normal daily activities[iv]

In 1981, the Administration concluded that noise issues were best handled at the state or local governmental level. As a result, the EPA phased out the office's funding in 1982 as part of a shift in federal noise control policy to transfer the primary

responsibility of regulating noise to state and local governments. However, the *Noise Control Act of 1972* and the *Quiet Communities Act of 1978* were not rescinded by Congress and remain in effect today although essentially unfunded. These regulations cover standard transportation equipment, motor carriers, low-noise emission products and construction equipment. EPA still works on issues related to airport noise, aviation noise as part of the Federal Interagency Committee on Aviation Noise (FICAN), railroad/ locomotive horn noise, and with the FHWA on motor carrier noise emission compliance regulations.

Occupational Safety and Health Administration (OSHA). This agency is concerned about the safety and health of America's workers. OSHA has determined that a maximum continuous exposure level for eight continuous hours cannot exceed a sound-pressure level of 90 dBAs. For every five decibel increase in this sound pressure level the allowable exposure time is cut in half. OSHA guidelines say that no sound-pressure level above 115 dBA is allowed without hearing protection, much as we observe worn by ground crews at airports. One wonders whether rock musicians are so observant when some of their music is known to reach as high as 130 dBA. One must always expect that OSHA rules are overlooked at times, and so both labor unions and individual workers may need to be alerted in order that good conditions are ensured.

Federal Highway Administration (FHWA). On August 11, 1997, the Department of Transportation finalized procedures for abatement of highway traffic noise and construction noise. The procedures prohibit federal participation in Type II noise barriers, and place increased emphasis on the importance of noise-comparable land use planning at the state and local level. The thrust is to make local governments more aware of the noises associated with the local growth and development process. At the local level, land use planning will prepare the community for the impacts of increased population and traffic disturbances.

Federal Aviation Administration (FAA). This agency is quite concerned about airport noise as well as about aircraft operations. It uses the day-night equivalent level for noise as established by the EPA as the noise "descriptor" in its assessment of land-use comparability with various levels of aircraft noise. This method was somewhat verified by work of Theodore J. Schultz in 1978 and became the basis for noise standards.[v]

Consumer Product Safety Commission (CPSC). This federal agency is charged with protecting the public from unreasonable risks of serious injury or death from more than 15,000 types of consumer products under the agency's jurisdiction. This is no small mandate since deaths, injuries and property damage from consumer product incidents cost the nation more than $700 billion

each year. Due to its varied work, the CPSC has contributed significantly to the 30% decline in the rate of deaths and injuries associated with consumer products over the past thirty years. However, only a small portion of the injuries have been known to be related to excessive sounds, though proving those injuries is quite difficult.

Federal Communications Commission (FCC). This agency has attempted to severely restrict privacy infringement by telemarketers. Telephone subscribers must notify the government in order to go on a list refusing such infringement. The notifying parties are encouraged to report any group that infringes on that restriction as well as report insulting callers both to the FCC and to the phone companies. Many annoyed telephone subscribers
today install caller ID services to detect unwanted callers or to select those callers with whom they want to converse.

3. State and Local Government Regulations

State and local ordinances and regulations differ vastly throughout the United States, and it would take a large appendix to simply list the various ones. Such a listing may not prove helpful anyway, since all local areas suffer from diverse noises originating from different types of sources and varying in intensity and duration. Furthermore, population concentrations, traffic volume, wildlife habitat, forest cover, land topography and climate conditions mitigate these situations.

The following are some general suggestions about current or needed state or local regulations assuming that some are already in place:

* **Know the scene** -- Know the existing state and local regulations and find out whether they are being enforced. Work with a local environmental awareness group to develop a policy statement that is clear and focused on a given sound problem.

* **Initiate action** -- When noise problems are being overlooked, first take matters into your own hands and perform a general auditing as mentioned in the first section. Make your findings known to the local media and call for a more comprehensive study. Press to find out whether political parties have policy statements on this and other environmental issues. Quite often, increased general environmental awareness leads to a greater willingness to handle noise problems so collaborate with other environmentally concerned individuals and groups.

* **Inform authorities** -- Bring the specific pollution problem to the attention of the responsible state and local officials and

seek a meeting with officials to find out what is being or can be done about it. Keep a written record of responses to such encounters for future reference.

*** Inform the individual candidates** -- Many candidates are distracted by a host of issues and so access to their attention is important especially if the office they seek could be responsible for treating the noise problem areas. Provide them with literature, a listing of any preliminary audits and more formal assessments along with evidence of annoyance from local residents. Seek to get a written policy statement by the candidate. Specific questions at telecast call-ins or at face-to-face meetings can also bring the matter to the candidate's attention. On top of what is currently regulated and enforced, quite often more or specific regulations are needed because of insufficient coverage in the standing legislation. The following areas are worth considering:

* **Fireworks --** Fireworks involve safety and noise problems. One is aware of the latter during the July Fourth holidays and even at other events in this country and abroad. I was in India at a Diwali festive season and New Delhi's fireworks sounded like a battle zone. Some states have stricter controls than others mainly due to safety considerations; they may require that sales be held in tents at a distance from permanent store buildings; they may prevent the sale of certain types of fireworks to youth or to non-licensed operators. Without more uniform state regulations, consumers purchase restricted fireworks in more lenient states and move them across state boundaries. From a noise standpoint, limitation on the times when the fireworks can be detonated is more easily controlled. Often a community fireworks display satisfies many local residents, but unfortunately not all.

Street noises. People in England appear more sensitive to public sources of noise than people in America; they have nationwide laws against what is termed a "statutory nuisance," or some sound that the courts decide is unreasonable to the average person. However such a designation can have subjective overtones. Some would define a quiet street person as a "nuisance" and so sound is not the only consideration, especially if visible matters are included. England's *Noise and Statutory Nuisance Act of 1993* excludes ordinary street traffic noise along with military forces and campaign demonstrations. What is included are: vehicles emitting noises caused by car repairs, radios and alarms along with parked refrigerator vehicles; loudspeakers (9:00 pm to 9:00 am) with the exclusion of police ambulance and fire vehicles; and outside of night hours for non-licensed entertainment. Complaints about loudspeakers or chimes should be made to the environmental health department.

Intruder alarms. With more burglaries some communities seek to improve alarms so that they are more pronounced in alerting both residents and neighborhoods. These can have a good effect and yet they can go off accidently and bring police as well as the entire neighborhood to a false alarm. In England, the *Clean Neighborhoods and Environment Act of 2005* empowers local authorities to designate all or part of their area as an alarm notification area. If such an area is designated, the local authorities must be notified and a local "key holder" designated who has access and can silence an accidental alarm. Authorities can gain access after the alarm has sounded for twenty minutes and if force is needed by use of a warrant.[vi] In England and Wales the *Noise Act of 1996* deals with noise emitted from dwellings between 11:00 pm and 7:00 am. When it is determined that the noise level has been exceeded, noise-makers can be fined and the noise-making device confiscated.

Land traffic controls. All our states have sophisticated sets of laws and regulations dealing with types and placement of signage, width of right-of-ways, speed limits and areas, strict requirements for seat belts, limits on alcoholic beverage consumption by drivers, and right-hand turn restrictions. Vehicle noise emissions are not as uniformly regulated, but many states require vehicle testing that includes muffler and exhaust conditions. Quite often motorcycles, the real noisemakers, get by quite easily. Trucks must pass similar testing hurdles in many states and must pass inspections on the Interstate system and certain state highways as well; other truck restrictions include weight of cargo and length of operating periods for drivers.

Recreation vehicles, especially popular all-terrain vehicles, are subject to a wide range of state regulations and local operating restrictions due to a rash of accidental injuries and deaths in recent years. These restrictions include the size of vehicle driven by various age operators, bans on alcoholic beverages, seat belt and helmet-wearing regulations, and prior instruction classes for operators. Few of these regulations deal specifically with the noise pollution that can be a major problem emanating from operating these vehicles. However, local land restriction on where these operate can be beneficial to wildlife and residents alike. It is generally recognized that the enforcement of these noise-based regulations can be quite difficult in remote areas and where the limited law enforcement personnel have to deal with a host of issues of higher priority.

Water traffic controls. Speedboats and other motor marine traffic become worrisome to residents living near rivers and lakes because the sound generated carries so well onto the shores. This excessive sound reaches higher volume during the warmer weekends

of the year as well as major holidays. Localities often respond with rules as to time of the day for such operations, limits on alcoholic content of drivers, distance from swimming areas, and speed of operation. Jet skis are especially associated with lack of noise control and safety problems for operators. Enforcement is quite spotted with some marine areas tightly patrolled by police equipped with watercraft. As water sports become more popular and the sheer numbers of motor boats increase, more problems are bound to occur -- but state and local governments are tightening the reins on control of such traffic as well.

Air traffic control. Air flights are also becoming more frequent at international, national, regional and local airports (20,000 in the United States alone). Small propeller airplanes are bothersome but hardly a major noise nuisance. Jets and jumbo jets are another matter, and we have noted that airport noises affect operating personnel, passengers and especially residents living in the direct flyways or near airports. In order to put some order into this rising crescendo of jet sound, local authorities have worked with airports on scheduling limits during the night hours. There is much pressure to extend times however so that incoming and outgoing flights may occur well into the night hours. Often schedule adjustments are state or regionally determined and in some cases the local inhabitants must bear the noise with little recourse. More can be done about control of airplanes passing through the sound barrier, low flying aircraft or the performance of stunt flying than about airport scheduling. However, local residents should still make their concerns known, for airport localities are often experiencing sizeable sound pollution increases.

4. Neighborhood Rules and Restrictions

Neighborhoods vary in the intensity, length and type of noise, in topographic and climatic conditions and in degree of dampening through ground cover. I live far from a major highway and airport. One mile away is a stone quarry with the sound quite distinct in parts of the day -- but it is on an isolated mountain side with heavy tree cover. Within a quarter of a mile is a major railroad concentrating area for coal trains. The quarry is a distant hum from very early in the morning but not really unpleasant. The railroad is not disturbing either once someone gets used to the hitches of each of one hundred cars tightening as the locomotives start moving the standing train. Other than a few barking dogs this is not a noisy neighborhood.

* **Curfews** -- Other neighborhoods have their problems: bars stay open too late; swimming pools are in use during the daylight hours; football games bring out the lusty yells; parties can go on to the wee hours; motorcycles must be revved up to draw attention

to the drivers; and neighborhoods can generate a host of other sounds that can break the silence. But the sound of traffic in the background or near at hand is always *numero uno* for consistent sound pollution. Many of the non-traffic-related neighborhood sounds can be controlled by a community curfew. Placing such a regulation into effect must be done with some diplomacy and not directly associated with a particular event or celebration -- and that may be hard to achieve unless enacted some time before such an anticipated event.

* **Motorcycle noise regulations** -- Motorcycles are constantly listed at the high end of the list of noise disturbances. In part this is because these are often recreational vehicles that are displayed by the drivers to create a sense of showmanship or power -- or at least it seems that way to non-motorcycle drivers. Specific regulations against revving motorcycles or limits on all vehicles are specified in many communities, and some local police have taken a more scrupulous practice of enforcing the laws. In some rural communities the officer is known to be conducting a "speed trap" and motorcyclists are special targets for some. I was acquainted with Lee Faulkner in Rockcastle County, Kentucky, who was the policeman in Livingston and was known in pre-Interstate days for running a "Speed Trap" along U.S. 25, a principal Midwest route to Florida. He prided himself on catching all sorts of speeders and motorcycles were no exception.

* **Work noise regulations** -- It is hard to regulate a jackhammer's noise, only the time when the operator can use it. The same applies to using chainsaws, bulldozers, backhoes and heavy construction equipment even though some users get variances for use outside of the regular work week. The use of explosive devices can be regulated as to blasting procedures as well as times of detonation. In cases of construction operations most of the noisy work should be concentrated in times considered least annoying -- usually weekdays from about 9:00 a.m. to 4:00 p.m.

* **Establish hospital quiet zones** -- Hospitals, senior citizen establishments, and convalescent facilities need local noise control measures and so zones are established. These should be equipped with proper signage, occasional patrols and even speed bumps to reduce the speed of local traffic. Regrettably, many of these facilities need better noise control within their facilities (tv volume, paging systems and the hustle of people about).

* **Playground/camping rules** -- Public and school playgrounds are generally filled with excitement and squealing kids. How can they be otherwise? As long as these are supervised and the times of use limited, some noise control is possible or at least confined. Most such areas are limited to youth and chaperons in order to keep out trespassing adults and to avoid carousing late

at night. Campgrounds can be a problem when not properly managed since here people come for vacations and the excitement keeps some campers up talking, laughing and singing until the wee hours. Most people are reluctant to impose curbs even though there may be strict camping rules -- and the best is to avoid the excitement-prone areas. Listening to amplified music from boom boxes is a practice that can disturb such campgrounds and that becomes a challenge to others. A careful and respectful police officer can generally bring matters under control.

* **Indoor noise controls** -- Often we find that interior areas of public buildings have posted noise regulations and generally have security guards to confront noise makers. These areas of controlled indoor space include courthouses, libraries, museums, and governmental offices. Public and private schools may vary in interior noise levels depending on degree of management and control. Since all forms of noise can be distracting, a sensitivity to those present is called for, and often the care takers must remind the disturbing parties of the rules. Care in segregating assembly, sales and cafeteria areas will assist in keeping down noise levels in other portions of such buildings.

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