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Notice to Authors

The Silliman Journal welcomes contributions in all fields from both Philippine and foreign scholars, but papers should preferably have some relevance to the Philippines, Asia, or the Pacific. All submissions are refereed.

Articles should be products of research, taken in its broadest sense; a scientific paper should make an original contribution to its field. Authors are advised to keep in mind that Silliman Journal has a general and international readership, and to structure their papers accordingly.

Silliman Journal also welcomes the submission of "Notes," which generally are briefer and more tentative than full-length articles. Reports on work in progress, queries, updates, reports of impressions rather than research, responses to the works of others, even reminiscences are appropriate here. Book reviews and review articles will also be considered for publication.

Manuscripts should conform to the conventions of format and style exemplified in this issue. Whenever possible, citations should appear in the body of the paper, holding footnotes to a minimum. Documentation of sources should be discipline-based. Pictures or illustrations will be accepted only when absolutely necessary. All articles must be accompanied by an abstract. All authors must submit their manuscripts in duplicate, word-processed double-space on good quality paper. If possible, a diskette copy of the paper, formatted in MSWord 6.0 should accompany the submitted hard copy.

The Editorial Board will endeavor to acknowledge all submissions, consider them promptly, and notify authors of its decision as soon as possible. Each author of a full-length article is entitled to 25 off-print copies of his/her submitted paper. Additional copies are available by arrangement with the Editor or Circulation Manager before the issue goes to press.

EDITOR'S NOTES

We are of the ruminating kind and it is not enough that we cram ourselves with a great load of collections; unless we chew them over again they will not give us strength and nourishment.

John Locke, On the Conduct of the Understanding

As an interdisciplinary journal, *Silliman Journal* has always promoted the critical conversation among various disciplines resulting in a publication richly characterized by diversity. As a venue for academic exchange of ideas, it has been the forum for active intellectual debates on a variety, oftentimes provocative, topics. There should be evident in this issue, as in previous ones, the principles and ends upon which genuine thinking depends and to which serious thinking repeatedly directs us. As the articles in this volume invite us to engage them, one is sometimes privileged to discover vital things that the authors themselves did not recognize or intend. This is the pleasure of discovery that John Locke so well understood when he challenged us to serious contemplation, to return to the articles, and to do so with renewed interest, enhanced competence, and deepened pleasure because of what is suggested in this collection about old-fashioned moral and political sensibilities rooted in human rationality and in the very nature of things.

The photograph on this cover is part of the photo and video documentary made by Dr. Christian K. Schales for the Siquijor research project and chosen for this volume to introduce the lead article on "The Holy Week Rites of *Manananbal* in Siquijor." For so long, the small island of Siquijor has intrigued the imagination of many as a place not only of natural beauty but of mysti-

cism, traditional healing, witchcraft, and voodoo. This picture of the steaming pot captures the source of this fascination, invariably inspiring fear, dread, as well as awe and wonder at the malevolent power it is believed to possess. This potent brew allegedly draws its power from a concoction of disparate ingredients especially chosen for their maleficent properties.

Yet, if one were to overlook the supposedly malevolent content of this pot, one may yet appreciate the amazing mix of substances and what they suggest about diversity and provocativeness, or the imagination that gave rise to them. Metaphorically, this steaming pot and its purportedly potent mix of baneful substances lends itself to this journal, by a happy coincidence, as an iconic representation of the issue's two aims: firstly, to suggest the expanse, richness, and diversity of the articles in this collection; and second, to tantalize readers into readiness to inquire and reflect on their values and beliefs, and provoke them to confront new issues.

This article by Rolando V. Mascuñana, Ceres E. Pioquinto, and Christian K. Schales documents the rites and rituals observed by the *mananambal* or shamanistic healers of Siquijor during Holy Week. Picking up from earlier studies on healing, witchcraft, and sorcery in Siquijor, this documentary examines some of the changes that have taken place in the ritual field and in the traditional healing practices as well as the factors that caused such changes. Most notable of these changes is the entry into this once-hallowed ritual field of the media and of the tourists who have managed to make the rites a media event as well as a tourist spectacle. Intended as an introductory piece to the series of articles on traditional healing practices of *mananambal* in Siquijor, this article makes an important contribution to the study of folklore and folk culture in the Philippines.

The next article by Betty C. Abregana on "Labor Force Participation of Children in Selected Fishing Villages in Negros Oriental," is a sobering

picture of the labor situation particularly in Third World countries involving children in highly exploitative working conditions and often hazardous occupational contexts. This documentary draws from a number of case studies of child laborers in the fishing industry in selected fishing villages in Negros Oriental in order to assess the extent of children's participation in the labor force in this country. In addressing this issue, this study probes into the social, economic, and cultural conditions underlying the phenomenon of child labor and examines the factors that impel children to seek gainful employment despite their tender age. The case studies in this report not only provide a grim picture of the exploitation and abuse child workers experience at their place of work. They also uncover the insidious process of recruitment, including the complicitous involvement not only of government agencies charged to protect children, but of parents themselves who are driven mainly by desperate economic situation.

The next article by Earl Jude Paul L. Cleope, entitled "The Philippine Revolution and its Western Pacific Rim Context," situates this important national event in the wider geographical context of the Western Pacific to examine its place in the development of anticolonial movements in the region as well as trace the various links connecting these resistance movements to each other. More significantly, this paper proposes a new way of looking at the Revolution not by concentrating on the internal events in the country at that time, but by focusing not only on the role of the various European and later American powers as they jockeyed for domination of the rich and strategic regions of the Western Pacific Rim, but on the processes of gaining such powers. In embarking on this New Historicist reading, Cleope proposes to examine the Revolution as a discourse in the Foucauldian sense, anchoring his argument regarding the play of power in the Western Pacific Rim on Foucault's notion of power and its achievement and the ubiquity of re-

sistance.

The following article by Rozzano C. Locsin, on "The Technological Competence of Practicing Professional Nurses: An Expression of Caring," was based on a study undertaken to determine the expression of "technological caring" of professional nurses who practice in critical and noncritical care settings. As defined in this study, technological caring refers to the technical achievement of caring within critical care settings as a result of technological competence among nursing professionals while practicing nursing. This paper argues that technological proficiency is as much an essential expression of caring in nursing as the traditional nursing activities involving physical presence and technical achievement. Although this study involved practicing professional nurses from a Southeast county in Florida, its importance to nursing education and nursing practice in the Philippines cannot be overstressed. Therefore, the need for nursing institutions in this country to start an investigation of this critical aspect of health care is timely.

Glen Lawrence's article, entitled "Diet, Cholesterol and Heart Disease: Socio-Political Ramifications of a Misguided Hypothesis," is a provocative challenge to the universally-accepted notion regarding the relationship between dietary health and coronary heart disease. Lawrence argues that politics and socioeconomic factors, rather than solid scientific basis, underlie the massive popularity of the so-called cholesterol hypothesis. Although Lawrence's study does not make reference to Jean-Francois Lyotard, his argument brings to mind Lyotard's notion of the "crisis" of scientific knowledge in *The Postmodern Condition*. In this penetrating analysis of the contemporary historical situation, Lyotard links the development of a criterion of scientific and economic usefulness and technical/economic effectiveness with the growing power of corporations. By controlling scientific research, corporations, according to Lyotard, set the terms of what would be construed as useful knowledge and by implication, of what would be construed as true. From this perspective, truth is no longer the property of a reality that would be described objectively using objective scientific methods, but determined by the effectivity of knowledge within a particular economic situation dominated by corporations that have the power both to shape the world and to say what counts as scientific truth regarding the world. In making a connection between dietary health and heart disease and the influential role of both the media and the processed food industry, Lawrence's study provides Lyotard's thesis a fitting illustration. Lawrence's study is both risky and daring, and evidently needing more scientific investigation of interconnecting causes and issues. Yet it takes a bold stand and exemplifies the essential nature of science described by Christian von Baeyer as "thriving on anomaly, inconsistency, controversy, and doubt." If this study manages to provoke important responses and stimulate further inquiry, then part of its purpose has been fulfilled.

It is my hope that the readers of this volume will be encouraged by what I say here to return to the articles and use diversity as a way to rethink familiar issues with a critical mind. Editing this volume has been simultaneously both pleasure and work. Yet, only some months ago, the possibility of bringing this issue into being was becoming increasingly remote and work was not always consistently felicitous. It became obvious that more than physical vigor or creative energies, commitment was needed to guide this journal into print. Its eventual journey to the press was anything but smooth and marked by countless vicissitudes. First, two refereed articles had to be pulled out just when technical editing began for insufficient documentation while their authors begged off for lack of time to revise them. This meant not only leaving a gaping hole in our projected collection, but throwing our thematic framework in disarray. Then, independent of our wishes or our deadline, our laser printer at the English Department conked out for good,

prompting an urgent search for funding we did not have to buy a replacement. In the midst of this crisis, my mother, Josefina Pioquinto, passed away quietly, serenely ending a life dedicated to serving others, and leaving a vacuum so difficult to fill. Yet, it was her lesson in belief and commitment that lighted up those darkest hours and finally propelled this project to completion. To her this issue is dedicated.

Since much of the work in this journal grew out of various collaborative engagements, it is a happy occasion for me to acknowledge my collaborators—contributors, reviewers, colleagues, friends who contributed variously to this project.

My deepest thanks go to the contributors for their intellectual energy, for their receptivity to critical feedback, their diligent and inspired revisions, and their patience during the long months it has taken to bring this issue to press; to the reviewers for their thorough scrutiny of the manuscripts, incisive and balanced judgments, and insightful and creative commentary; to Prof. Eberhard Curio, a critical person always generous with his time and expertise in the name of species conservation, for his helpful suggestions in locating critical readers among his German colleagues and connecting me with them; to Nino Soria de Veyra who put his expert hand in creating the book design of this volume and for his sensitive and sensible technical editing; to Naty Sojor, quietly efficient as always, for making miracles out of our meager budget and patiently shepherding the volume to press; to our Great Ideas Program of the Department of English and Literature for providing the much-needed loan of money to buy a new laser printer and to the Vice President for Finance, Jean Espino, for facilitating the speedy release of this loan and, especially, for trusting us to pay it.

To the Department of English and Literature for generously providing *Silliman Journal* a home and allowing unlimited access to precious equipment which transformed the formidable task of publication into a challenge rather than a hurdle; to Christian K. Schales, ardent collaborator, persistent gadfly, walking conscience, but source of unfailing support, and so much else—inadequate words, thanks; to friends and colleagues at the Department of English and Literature—how to say thanks for seeing me through those darkest hours; to other friends and colleagues who offered support and inspiration in countless ways but whose names I cannot all mention yet know as well what is in my heart, my deepest gratitude and appreciation.

This resulting volume made me see collaboration as a gift writers give one another.

Ceres E. Pioquinto

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THE HOLY WEEK RITES OF THE MANANAMBAL OF SIQUIJOR[1]

Rolando V. Mascuñana,
Ceres E. Pioquinto,
and Christian K. Schales

Abstract

Intended as an introductory piece to the series of articles on traditional healing practices of the mananambal *or shamanistic healers of Siquijor, this paper documents the rites and rituals observed by the traditional healers during Holy Week. Rooted in the folk belief that the spirit world opens on Good Friday and magical powers are dispensed into the environment, Holy Week is thus the most eventful activity of the year for the* mananambal *of Siquijor who host this event, as well as for visiting* mananambal *from other islands. Aside from the ritual search for medicinal materials that climaxes on Good Friday, the highlight of this celebration is the ritual cooking of two of the most important concoctions of the traditional healing practice: the* igdalaut *or evil brew used in sorcery and prepared during Good Friday, and the* minasa *or antidote to sorcery cooked during Black Saturday. Given the widespread popularity of this annual event among traditional healers, it is not surprising that the Siquijor Holy Week rites attract not only oldtimers but new faces as well. Predictably, the entry of television and film has given these once hallowed rituals both national and international attention, attracting even more followers and believers in the process. As yet, it is difficult to gauge the extent of media influence on these practices but one thing is certain, some of the* mananambal *themselves seemed to have understood fully the implication of media presence to their reputation and appeared to have taken advantage of this media exposure to add a bit of show effects on their rituals.*

For a long time, the small island of Siquijor has attracted the fascination of many as a place not only of natural beauty but of mysticism, traditional healing, and voodoo. In fact, in the minds of many people, the mere mention of the island's name conjures up images not so much of white beaches or lush countrysides, but of amulets, *barang*, black and white magic, and highly-skilled shamanistic healers proficient in the art of both healing and hexing. For the *mananambal* of Siquijor and their faithful followers, the Holy Week rites and rituals not only constitute the basis for the traditional healing practice, but also guarantee the effectiveness of this

practice for both white and malign magic, as well as the efficacy of the medicinal preparations that are concocted once a year during this period.

This paper revisits a subject that continues to fascinate many scholars and researchers from different disciplinary backgrounds. Picking up from the earlier studies on healing, witchcraft, and sorcery in Siquijor (Leiban 1967; Ponteñila and Reynolds, 1971; Vista, 1978; Seki, 1994), the present study focuses mainly on the Holy Week rites of *mananambal* (folk medicine practitioners or healers) in what was popularly known during the Spanish time as the "Island of Fire." A major goal of this study is to examine the changes that have taken place through time in the healing practice and ritual observance of the *mananambal* in Siquijor. Intended as the first of three articles, this paper includes the results of initial observations and interviews conducted by the research team in 1998, as well as part of the data gathered by Prof. Rolando V. Mascuñana in 1999. It also includes the data in the video documentary coverage and photos taken by team member, Dr. Christian K. Schales. An interview schedule was designed specifically for this project. This was supplemented by informal interviews with local residents as well as with visiting *mananambal* from other islands who make the annual pilgrimage to participate in the Holy Week rites, and with observers, and regular visitors who come to Siquijor mainly to procure traditional medicine.[2]

The Research Area

The small island province of Siquijor has a land area of 34,350 hectares and 73,756 population (Census 1995). Formerly a subprovince of Negros Oriental, it became a separate province in 1971 by virtue of Republic Act No. 6398. Larena was the province's former capital until the majority of the people of the province voted in favor of Siquijor[3] as provincial capital in the 1970 referendum. With Proclamation No. 1075, the capital was officially

Figure 1: Deforested and eroded landscape in Siquijor*

transferred from Larena to Siquijor in 1972. However, Larena remains the commercial center of the province with the largest concentration of businesses and banks in the island.

Siquijor is approximately 30 kilometers east of Dumaguete City, the capital of Negros Oriental. Fast ferries ply daily between the ports of Larena and Dumaguete. Motor launches and interisland vessels also regularly dock on any of the three main ports located in Larena, Siquijor, and Lazi. The port in Larena is the largest in the island and accommodates vessels up to 500 tons. Pumpboats also ply daily between Dumaguete and Solongon beach in Siquijor as well as between Dumaguete and Tambisan, San Juan. During inclement weather, the sea is rough and travel by smaller vessels is not safe.

Topographically, the island is generally hilly and mountainous. Of the island's total land area of 34,350 hectares, 12,507 hectares (36.41%) are identified as "rolling to moderately steep,"

"gently sloping" areas total 6,725 hectares (19.58%), while "flat plains" consist of 4,879 hectares (14.20%). About 6,300 hectares are identified as "steep to very steep" (18.34%), and 3,939 hectares as "undulating to rolling" (11.47%) (*Siquijor Development Profile* 1995: 3). At present, the island is heavily deforested. Devoid of vegetation, many areas show signs of mild to severe soil erosion. The massive destruction of the island's forests in the past and the continuing illegal cutting of trees in some declared forest reserves have caused the depletion of soil nutrients and the drying of some rivers and springs. This condition has further worsened the island's perennial problem with water especially during the long dry season.

The island's major economic activities are farming and fishing. Small cottage industries which make furniture from *buri* (*Corypha elata* Roxb.) and *abaca* (*Musa textilis* Nee) are thriving. Siquijor has capitalized on its beautiful beaches to attract foreign tourists and their influx is responsible for the growth of the tourism industry in the island. In addition, the quiet, laid-back surroundings are now home to a number of foreign retirees and nationals who have found the island an ideal place to stay. But more than the beauty of its natural surroundings, it is Siquijor's famous traditional healers (*mananambal*) that have given the island its reputation as "the center of sorcery in the area of the Visayas, Central Philippines" (Ponteñila and Rey-nolds, 1971: 75).

The research areas covered three *barangay* of Siquijor, namely, San Antonio, Cantabon, and Punong; the Sitio of Buac-Bato in San Antonio; and the *barangay* of Timbaon in the neighboring town of San Juan. Of these places, the most noted for its *mananambal* is San Antonio, variously known as "the 'graduate school of sorcery' for the whole island" (Ponteñila and Reynolds 1971: 76) and the "seat or 'school' of sorcery in the region" (Vista 1978: 63).[4] An interior barangay located six kilometers away from Siquijor *poblacion,* San Antonio has drawn local

and foreign tourists alike to come to the island for treatment of certain illnesses, especially those attributed to *barang*, which Leiban considered as "the most notorious form of sorcery" (1967: 1). It also attracts a different kind of clientele—those who seek the services of a *mananambal* to hex an enemy or obtain medicine and other forms of charms that would cure, protect, bring luck or ward off evil, as well as stimulate sexual potency.

The *Mananambal*

The *mananambal* are "shamanistic folk healers" (Leiban 1967: 4) who cure diseases with a combination of a concoction of medicinal herbs and spiritualistic techniques. Five male *mananambal* formed the core of this anthropological investigation.[5] They have been identified by the team from personal interviews with the healers themselves and from informal inquiry from local residents, as well as observers who regularly frequent this annual gathering. Of these traditional healers, two are from Barangay San Antonio (Centro and Sitio Buac-Bato), one from Barangay Punong, one from Barangay Cantabon (all of the town of Siquijor), and the other from Barangay Timbaon in the neighboring town of San Juan.[6] Each has established a reputation based on his own style and skill in curing illnesses particularly those inflicted either by malevolent spirits or by human beings with the intercession of another *mananambal* through sorcery, a process locally known as *daut*, literally "to destroy." Interestingly, although this is widely believed by the local population, the *mananambal* themselves do not openly admit to practicing sorcery.

For purposes of confidentiality, the names of the healers are withheld. *Mananambal A* from Centro, San Antonio, uses herbal medicine along with *oraciones* (prayers with magical powers) for treatment. According to local respondents, this *mananambal* hexes in favor of his clients but cannot undo the damage he has caused and cure the person whom he has hexed. Informants liken him to

a person who knows how to destroy a house but cannot reconstruct what he has destroyed. According to informants, he would often ask *Mananambal B* to perform the process of reversing the spell, locally known as *badbaron* or *solbaron* (to disentangle the mess). For this inability, *Mananambal A*'s healing practice is widely perceived as "fabricated."

Mananambal B from Sitio Buac-Bato, San Antonio, uses herbal medicine and *oraciones*. He hexes as well as cures, and informants label him as "incorporated." Patients who believe they are victims of hexing consult him. His work is deemed by his followers as very effective though quite "expensive."

Mananambal C comes from Barangay Cantabon. Like the other *mananambal*, he uses herbal medicine and *oraciones*. Informants report that he does not hex but cures patients who have been hexed. In this aspect of healing, he has gained a reputation and patients who are victims of sorcery run to him for help. Nevertheless, he is believed to be well-versed in the trade of sorcery except that he prefers to spend more time on healing.

Mananambal D is based in Barangay Timbaon, San Juan. In his healing practice, he uses herbal medicine mixed with ingredients such as coconut oil and scrapings of blessed candles obtained only from the church. Like his counterparts, he uses ritual prayers (*oraciones*) along with herbal medicine to cure his patients. But unlike the other *mananambal*, he does not hex and is very critical of the healing practices of other healers in the island. He is reportedly adept at getting rid of troublesome spirits (particularly *ingkanto, agta, duwende*) believed to cast a spell on humans.

Mananambal E operates from Barangay Punong. He uses herbal medicine but prefers *oraciones* to cure his patients in a unique procedure that includes making the patient stand in front of a special altar from which, he claims, "X-rays" emit.

To diagnose the ailment, he uses a piece of white paper as a kind of "film" which he positions on the patient's back.

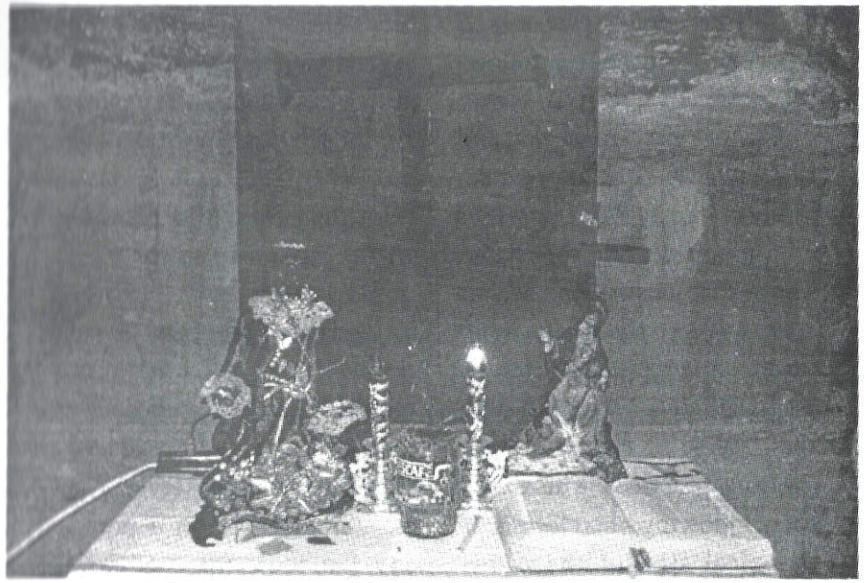

Figure 2: The "X-ray" altar of Mananambal E

He develops this film by drawing the organs and the pathological findings only he can see. After making his diagnoses of the patient's illness, he writes down on a small piece of white paper the *oraciones* that allegedly only he and his mystical partner[7] know. He then rolls the paper, places it inside the glass with water, and then places the glass on the altar. The patient is then made to drink the water that is believed to possess miraculous properties. In addition, this healer is reputedly able to *tag-na* (foresee or predict) one's future as well as locate lost or stolen items. He is said to be able to identify the finders of lost items and catch thieves by making them feel guilty for keeping the items and leaving them restless and fearful. If the lost items are not retrieved or returned, he could prescribe concomitant punishments to offenders. Allegedly, he can also exorcise and communicate with land spirits. Besides being a *mananambal*, he also claims to be a *tugahan* (faith healer) with spiritual power.

Except for *Mananambal E* who works without a following, each of the four *mananambal* has a group of men and women healers and apprentice-healers from other places within and outside the island. These four traditional healers are considered the *mananambal-maestro* or *dako-dako* (literally "big-big" or a "big man") for the quality of their *panambal* (healing practice). The size of their following therefore is an indexical sign of the *mananambal*'s reputation. The more proficient a *mananambal*'s healing practice, the more popular he is and the more followers he has. A *mananambal*'s reputation is especially evident in the size of the crowd that gathers at his residence during Holy Week.

The Holy Week

To the *mananambal* of Siquijor, Holy Week is the most eventful activity of the year. Considered an important Christian celebration, this occasion is the time for folk healers to renew their vows before God, whom they consider the giver of life and source of their *gahum* (healing power). According to the *mananambal*, this power has been given to them not for their own personal gain but in order to help their fellowmen. Prof. Magos's study on the *ma-aram* (or the traditional healers) in a far-flung *Kinaray-a* community of Antique, Panay, provides some insights into the significance of Holy Week to traditional healers. The study observed that "... Good Friday is a potent day [to look for medicinal plants] because the environmental spirits are believed to be roaming about and it is easier to communicate with them" (1992: 83). It is believed that at this time the doors of the spirit world open and therefore a good moment to connect with essence and commune with nature. Similarly, according to Arens, "...magical powers are given ... especially on Good Friday, so that materials used in magical practice have to be gathered or prepared on this particular day" (1956: 135).

The Holy Week is significant for another reason. It is at this time that new medicine is

prepared or "cooked" and "old medicine" is either discarded or "mixed" with new ones. As the efficacy of new medicine is said to last for a year, a new concoction has to be brewed each year and only during Holy Week. Because these medicinal concoctions made from certain roots, barks, and herbs have to be ritually prepared, they are brewed only by the *mananambal*. The new concoctions are eventually distributed to fellow practitioners and apprentices. Because of the widespread reputation of Siquijor-based *mananambal* in the practice of traditional healing, as well as in both white and malign magic, many *mananambal* from Mindanao, Negros, Panay, and other towns in Siquijor converge in the area in a kind of annual pilgrimage in order to participate in the ritual preparation of healing oils and potions. At the time of the field work, the researchers noted that each group of local *mananambal* hosted about 15 to 25 practitioner-members who in turn came with their assistants and apprentice-healers. One of the *mananambal,* a woman from Panay who considered herself a specialist in women's illnesses and parturition, had been to the island four times.

The Holy Week rites commence on Holy Thursday with the arrival in the island of visiting *mananambal* at the homes of their host-*mananambal* with whom they have been associated. Some of them are in the island as early as Tuesday or Wednesday. Being an annual event, this occasion is an opportunity for renewing friendships as well as meeting new acquaintances. Visiting *mananambal* bring with them their provision to last for three to four days. These consist of rice, fresh or dried fish, canned sardines, and packed noodles, among others. Food is collectively prepared and meals are served on the long table for all the *mananambal* to share. Each one also brings some of the ingredients needed in the preparation of the medicines that will be cooked on Holy Friday and Black Saturday. These contributions are collected and recorded by a family member of the host-*mananambal.*

The Rites

The rites performed by the *mananambal* begin with *pangalap*, the annual ritual search for the medicinal materials performed seven Fridays before Good Friday. This is followed by the activity known as *pangadlip*, or the chopping or cutting of the medicinal materials for the preparation of the "evil brew" or *igdalaut*, and the cooking preparation of the counter sorcery called *minasa*.

The *Pangalap*

Pangalap is part of the vocabulary of the *mananambal's* healing practice (Vista, 1978: 63). As a noun, it refers invariably to the ritual search for special medicinal ingredients that will go into the brew, as well as to the special ingredients themselves, many of which are believed to possess either potent curative or baleful qualities. Its verb form, *mangalap*, refers to the major activity in the *mananambal* healing practice of going out to search and collect these special medicinal materials during the ritually-specified period of time. This ritual search covers a period of seven Fridays commencing immediately on the Friday after Ash Wednesday, the first day of Lent, and ending on Good Friday during the Holy Week. According to respondents, the searching, collecting, and stockpiling of the medicinal materials, such as leaves, roots, barks and branches of trees, vines, scrapings of blessed candles, coconut oil, holy water, graveyard sand, and items from the sea are performed during the seven successive Fridays preceding Good Friday. The sources of these medicinal ingredients are forest, the seashore and/or sea, caves, cliffs and riverbanks, churches, and graveyards or cemeteries. In their search for *pangalap*, the *mana-nambal* are careful not to miss a single site.

Since the *mananambal* often have to scrounge the most remote places for their medicinal ingredients, they are said to face some danger along the way. The hazard of this undertaking is vividly described by one *mananambal* who commented that,

> *Dili baya lalim ang mangalap. Aduna'y aksidente nagpahipe kanunay. Peligro kon mapa-akan ka'g sawa didto sa lasang ug di kaha layogon ka's mga unggoy*
>
> (It is not a joke to search for medicinal ingredients. One is likely to meet an accident along the way; your life could be in danger from snake bites or monkey attacks in the forest").

For this reason, female *mananambal* usually affiliate themselves with male *mananambal* who undertake this perilous activity on their behalf. For instance, an elderly female *mananambal* from a neighboring town gets her supply from a *mananambal* in Cantabon. She is among the small group of female healers who regularly come to him during the Holy Week. Another female practitioner from Dipolog obtains her herbal medicine from her *maestro* at Barangay Buac-Bato. In this context, *mangalap* can also literally mean "to secure medicine from a *tambalan*." Thus, "*mangalap mi'g tambal sa Siquijor*" means "we will procure medicine in Siquijor."

Visiting *mananambal* who arrive in the island early join their host-*mananambal* in the search for the remaining ingredients. By dividing among themselves the task involved in the ritual search, visiting *mananambal* ease much of the burden from the *mananambal-maestro*. In an organized division of labor, one group is assigned to conduct the search in the sea or along the seashore. The other group takes care of searching in the caves for *panga-ay* (stalactites and stalagmites). This group has to explore around 25 caves in the island in search of the desired cave materials. Another group is assigned to search in the church premises. While undertaking this ritual search, talk is minimal and the activity is expected to be carried out in secret. Thus, when the *mananambal* accidentally meet each other along the way during the ritual search, they use the term *panginhas* (to collect or glean shellfish as one does during low tide) to metaphorically allude

to their activity and greet each other like this: *"Asa man, manginhas na sab ta?"* (Where to, out to 'glean'?).

Each *mananambal* is expected to gather enough species of plant materials as ingredients for the *minasa*, the antidote for sorcery. For the *mananambal* to be able to collect as many as 100 to 200 herbal materials requires a considerable number of Fridays to spend in the forest. Among the *mananambal-maestro* in Siquijor, *Mananambal C* is believed to mix the largest number of plant species for his medicinal concoctions. Because of his knowledge of herbal medicine, he was hired by the Department of Environment and Natural Resources to plant and propagate those species that are becoming extinct. One of his tasks is to maintain the nursery for medicinal plants in Mt. Bandilaan. Although not all *mananambal* are directly involved in the DENR project, they are nevertheless allowed to use the forest resources.[8]

The order of visits to specified geographical sites during the period of search for the medicinal ingredients is decided by the *mananambal-maestro*. For *Mananambal A* and *B*, the first Friday of the ritual search usually starts in the direction towards the east. On the second Friday, they take a westerly direction, towards the north on the third Friday, and towards the south on the fourth Friday. The remaining three Fridays are scheduled depending on which items in the stockpile are still lacking. For his part, *Mana-nambal C* spends the first three consecutive Fridays in the forest of Mt. Bandilaan in search of herbs and related materials. The last three Fridays he spends each in the caves, seashores, and church.

Good Friday, the last day of the ritual, search is done in graveyards and is conducted at noontime when no one is usually around cemeteries. Only the *mananambal-maestro* undertakes this particular ritual search which involves collecting sand from the grave, said to contain bits and pieces of human bones. The collection of sand starts from the four secluded corners of the cemetery

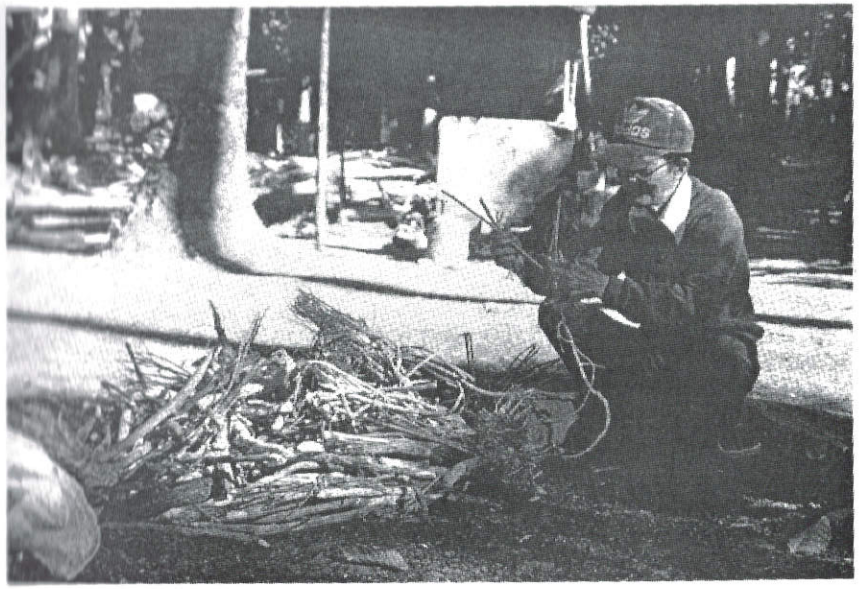

Figure 3: Mananambal-maestro examining items collected during pangalap

and ends at the center where the big cross or chapel is found. Supposedly, this is where the human remains of unknown individuals are kept after these have been exhumed from the grounds. Here, the *mananambal-maestro* offers prayers and lights candles for the repose of the souls. A part of this ritual, strictly observed by the *mananambal-maestro* when he heads home after this task, is silence and avoidance of human interaction along the way. For this reason, he tries as much as possible to avoid meeting people or talking to anyone.

All herbal medicine collected during the ritual search are stored in a place not far from the *mananambal*'s house before these are cut, chopped or shaved into small pieces called *inadlip* (*adlip*: to cut).

During the field work, the researchers noted that *Mananambal A* placed his medicinal collection in a small hut near a pigpen while *Mananambal C* deposited his in the *landahan* (copra dryer) not far

from his house. Meanwhile, *Mananambal B* placed them under his house. For his part, *Mananambal D* placed his collection in a small hut adjacent to his house. Since these medicinal materials are still fresh and have not been processed yet, they are intentionally left outside to dry. It is believed that they lose their curative potency if placed inside the house, as well as make everyone in the house ill due to their still active components.

The collected medicinal herbs are separated according to whether they have healing ("good") or harmful ("bad" or "evil") properties. Since the *mananambal-maestro* is believed to possess a special knowledge about herbal medicine, he takes responsibility for sorting out the herbal materials according to their specific properties and characteristics. In doing this, he takes utmost care that these materials are not mixed up during the *pangalap* as well as during the *pangadlip*. He then proceeds to keep them separately in empty grain-sacks properly marked. This is strictly observed because although the identified clusters of herbal ingredients undergo the same preparation procedure, they are not processed together. For example, the *inadlip* labeled "good" are burnt or roasted black *(agiwon* or *pagongon)* in a distinct *kawa* (metal wok) separate from those labeled "bad." These charcoal-like materials are then powdered by using a set of pestle and mortar designated for this purpose. The powdered materials are then set aside as ingredients of the *minasa,* the antidote against sorcery. Meanwhile, *inadlip* labeled "bad" also undergo the same process but using a different set of cooking utensils, including the pestle and mortar, likewise especially designated for the purpose. These powdered materials become the ingredients for *igdalaut* (sorcery).

The *Pangadlip*

Pangadlip is a Holy Thursday activity collectively participated in by men and women *mananambal,* as well as by apprentice-*mananambal* who are followers of a *mananambal-maestro.*

Figure 4: Pangadlip: chopping inadlip for the minasa

The 1998 research team noted that neither number nor gender determined the composition of participants in the *pangadlip*. For instance, at the house of *Mananambal B,* where the research team had the opportunity to observe the activity, three women and eleven men comprised the *pangadlip* group.

The following account observed from the place of *Mananambal B* and *Mananambal C* will provide a glimpse of the process.

As soon as the group is constituted, all participants pick up a knife and a chopping board and gather around the improvised jute mat placed on the ground by the *mananambal-maestro* to begin the *pangadlip* process. The *mananambal-maestro* "ritually" initiates the process of chopping. From his stockpile he picks one item at a time, a small branch or piece of root, for example, and whittles off three small pieces from it. In a counterclockwise motion, he hands the bigger piece to the person to his right who

does the same thing and then passes this on to the next person. This process continues until the last person in the circle to the *mananambal*'s left has gathered all the remaining items handed to him. While this activity progresses, an atmosphere of conviviality takes place as male and female *mananambal* in the circle talk freely and exchange banter while chopping the medicinal materials on the wooden board.

As soon as a large quantity of *inadlip* materials have been prepared and piled, they are collected by the assistants and brought to the cooking field for further processing. They are then roasted or burnt to charcoal in a large metal wok, a process called *agiwon, ulingon* or *pagongon*. The burnt materials are then powdered and stored inside a big barrel and covered with elephant leaves locally known as *badjang* or *badyang* (*Alocasia macrorrhiza* (L.) Schott.). The leaves are secured with a strip of bamboo vine tied around the barrel as rope. About 10 kilos of powdered stuff are stored in this container as medicinal ingredients.

Meanwhile, those *mananambal* who are not directly involved in the roasting and powdering of the wood and herbal chips continue with *pangadlip*. The remaining *inadlip* are then stashed away by the *mananambal* for their own *panambal* or home remedy. Extra cuts or shavings are collected at the house of the *mananambal-maestro* and sold to visitors who want to place them in bottles filled with *lana* (coconut oil) or use them as ingredients in tonic drinks which are believed to be physically invigorating.

There are two sets of medicinal concoctions prepared by the *mananambal* and his apprentice during Holy Week. The first brew, the *igdalaut,* is "cooked" during Good Friday and contains the maleficent ingredients[9] collected by the *mananambal* from various *pangalap* sites mentioned earlier. The second brew, cooked during Black Saturday, is the *minasa* or *panagang,* a concoction of various ingredients collected by the *mananambal-maestro* and his assistants during the

Figure 5: Cooking the igdadalaut

pangalap and considered as a potent *panagang* or antidote against sorcery.

The Evil Brew or *Igdalaut*

As the term suggests, the *igdalaut* or evil brew is made from ingredients with maleficent properties collected by the *mananambal* from various *pangalap* sites. It is cooked during Good Friday in a small new earthen cooking pot specifically designated for the purpose of sorcery.

This particular cooking pot is never used again and is disposed of by destroying and burying it in a place far from human activity. The first set of ingredients to be added in the brew includes *pangalap sa dagat ug baybayon* (*pangalap* from the sea and seashore) which, until they are ready for processing, are stored in a sealed bamboo container known as *sugong*. Among these are *tuyom* (sea urchins), *coroscoros* (starfish), *bukya* or *bulbog* (jellyfish), *botbot* (a species of sea anemone), *bahagbahag* (*Synapta* sp.), and species of *botete* fish (Tetra-

odontida), crabs, and algae from the sea. These ingredients share some things in common—they are either poisonous, spiny, or prickly creatures from the sea. As soon as the *pangalap sa dagat ug baybayon* have been placed in the pot, they are mixed with the *inagiw* or *pinagong,* the powdered burnt chips and shavings of herbal materials which have harmful effects.

Coconut oil extracted from a lone coconut fruit facing westward is then added. The significance attributed to this particular coconut in folk medicine stems from the belief that a lone coconut that matured singly rather than in a bunch, in a branch facing the west, augers death and is therefore effective for malignant purposes. This concept is reinforced in sorcery by the equally pervasive belief that the west is an unpropitious direction since it is where the sun sets and thus symbolizes death. Furthermore, this special coconut fruit must be picked from the tree and never allowed to drop onto the ground. Consequently, an able assistant of the *mananambal* has to get the fruit by climbing the tree, taking extra care when descending. In addition, certain taboos have to be observed during the processing of this nut. For instance, the meat should never be eaten nor its water contents drunk. The *sapal*, (desiccated byproduct left after extracting the coconut milk), should be buried in a safe place and not given as feed to hogs as usually practiced with ordinary coconuts. Likewise, the *lunok* (greasy substances that solidify before oil comes out during cooking) is disposed of by burying. Violation of these taboos is believed to cause sickness or misfortune. Meanwhile, the husks and shells are used for fuel in the *palina* (fumigation or smudging).

As observed by the research team, the cooking schedule varied according to the *mananambal-maestro*'s discretion. During the 1998 field work, for example, the cooking of the *igdalaut* was set on Good Friday at 12:00 noon. In 1999, however, the cooking at *Mananambal-maestro B*'s house was set at about 5:00 in the

afternoon and spectators, including some people from the media, who stayed to watch were told to come back the following day, Black Saturday, to observe the activity supposedly designed especially for the public. The cooking of the *igdalaut* brew was conducted in a secluded wooded place and attended by very few practitioners, all of them male.[10] The cooking pot was placed over a small makeshift stove made up of three large stones positioned like a tripod between which fire was continuously burning. This improvised stove was located between two other stoves of piled rocks big enough to fit a large *kawa*. The three stoves were arranged in a triangle. The stove designated for the "evil brew" was positioned at the far end pointing westward.

The following is a description of the *pangdaut* or *igdalaut* ritual performed by *Mananambal C* and recorded in the field work data gathered by Mascuñana in 1999.

The first to cook are the items taken from the sea, *mga katol sa dagat* described earlier, whose special properties are believed to cause an itch. Next, coconut oil extracted from a nut hanging singly from a branch facing westward is added. As the cooking progresses and the powdered *inagiw* from chips marked "evil" are added to the preparation, the contents of the pot are continuously stirred to ensure a well-blended mixture. The next ingredients to be added are those items from the sea believed to have poisonous or baneful properties, *mga dautan ug lala sa dagat*. After its contents have been poured into the pot, the bamboo container on which these items have been kept is then thrown away. Finally, sand taken from the cemetery, purportedly symbolizing death, is added to the mixture.

The smell emanating from this cooking is overpowering. At the time of his field research in 1999, Mascuñana was given the leaves of *pahiuli* or *pahauli* (scientific name not available) to protect himself from the toxic smell. The leaves have medicinal properties and when they are squeezed their sap emits a pleasant and thera-

peutic aroma. When the squeezed leaves are inserted in one's nostrils, they dispel the noxious odor and relieve the person of the debilitating effect of the brew. During the cooking, a spectator who saw the cooked brew commented: "It's all black and looks evil," while no less than the *mananambal-maestro* himself exclaimed, *"Kining buhata gahom ni Satanas"* (This is Satan's work). Before the pot is taken out from the stove, its mouth is covered with the leaves of *badyang*, an itchy plant, which are fastened in place with a strip of banana stalk and wound tightly around the neck of the pot. The pot containing the brew is never placed in the house but isolated in a safe place as far away as possible from the *mananambal*'s residence, for it is believed that it will make everyone, including animals, ill. According to Lieban's study, "these ingredients in...sorcery rituals possess a potency whose action is automatic and amoral" (1967: 42).

Mananambal C made this brew available to anyone interested for a small fee especially to those who have no sufficient knowledge to prepare the concoction themselves. As the *mananambal* themselves professed, the brew is used only as the need arises, for example, "as a means of direct aggression against those who antagonize or injure him/[her]" (Leiban 1967: 34).

The *Minasa or Panagang*

The second brew is the *minasa.* Like the "evil brew," it is prepared but once a year, but unlike the former, the cooking is done specifically on Black Saturday, and its purpose, ingredients, as well as the process of its preparation differ significantly from the *igdalaut* brew. The word *minasa* comes from the Cebuano root word, *masa,* meaning "to mix." As a medicinal preparation, it is widely believed to be a potent *panagang* or antidote against sorcery. Among its ingredients are the roasted and powdered *inadlip* from herbal medicine labeled "good." *Minasa* is used for various medical home remedies such as *palina* or *tu-ob,*

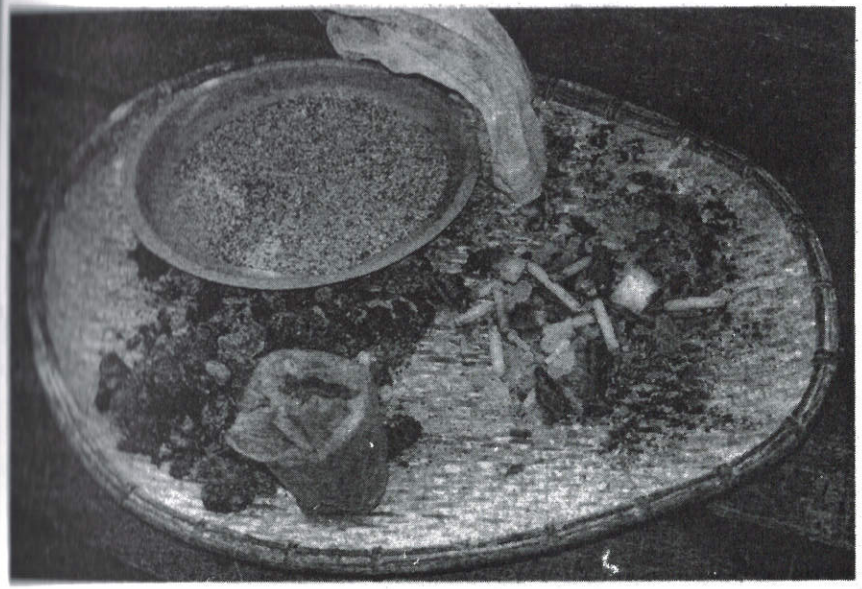

Figure 6: Ingredients for the minasa

that is, to "smoke away" the illness or to drive away evil spirits, and can be done without the assistance of the *mananambal. Minasa* is also believed to possess healing properties. Popularly used as *habak* (amulet), it is usually inlaid in a bullet shell or stitched into a small pouch of cloth tied around the neck or waist. As *anting-anting,* it is believed to bring good luck during cockfighting, fishing, and planting crops.

Although the *minasa* is cooked only on Black Saturday, the specific time for cooking varies from *mananambal* to *mananambal.* In 1998, for instance, *Mananambal A* performed his *minasa* ritual at 6:00 in the morning of Black Saturday. On the other hand, *Mananambal B* carried out his ritual cooking at 10:00 in the morning which allowed the team to observe part of the ritual. Perhaps because of the time, the house of *Mananambal B* was crowded with visitors including media people, who recorded the event on video camera, and foreign tourists who took photographs of the

Figure 7: Cooking the minasa

activity.

Meanwhile, the *minasa* ritual at *Mananambal C* started shortly after lunch and there the research team was able to watch the observance in its entirety. Also because of the time, the house of *Mananambal C* was likewise crowded with people, including the place where the cooking was to be done. The ritual cooking of *minasa* started at about 1:00 in the afternoon at the same secluded wooded area were the *igdalaut* was cooked the day before. Two large *kawa* were set over the cooking stove as assistants and other *mananambal*, all male, prepared the ingredients. Unlike at the *pangadlip* where both men and women participate, the *minasa* ritual appears to be a predominantly male activity. Although women-*mananambal* participated in the chopping of candles[11] in the cooking area, they remained on the sidelines as plain observers during the cooking of the *minasa*.

The *minasa* ritual described below was observed at the house of *Mananambal C* during the 1998 and 1999 field work. The sequence of the activity has been cross-checked with the video documents taken in 1998 by Schales.

Figure 8: Distributing the minasa

The first ingredients placed in the metal wok are *suka* (vinegar) and *tuba* (fermented coconut wine). As the mixture is brought to a boil over medium- to high heat, it is stirred slowly but constantly with the use of a long-handled coconut shell ladle.

As soon as the mixture boils, pieces of *kabulay* (honeycombs) are dropped into it and *dugos* (honey) is poured into the cooking vessel. The next ingredients to be added are the items from the sea, *mga dautan, katol ug lala sa dagat,* which have been combined together and are in a state of decomposition by this time. The assistants of the *mananambal-maestro* constantly stir the contents as the blessed candles, incense, holy oil, and other items obtained from the church are added. Then *lana* (coconut oil), extracted from a lone nut facing eastward (*silangan* or *sidlakan*),[12] is added. As the pow-

dered *inagiw* from the "good" chips are added to the concoction, the mixture is stirred continuously as the cooking progresses. Finally, the last ingredient, sand taken from the cemetery, is added. While still hot, the cooked *minasa* is fluid- to jelly-like and gradually solidifies as it cools.

When the cooking is finally over, *Mananambal C* calls for silence in preparation for the benediction and then blesses the *minasa* with holy water obtained from the church. As he sprinkles holy water into each of the cooking woks, he recites the following prayer loudly:

> *Dungan sa pagisong sa atong Ginoo,*
> *Tambal akong gimugna ug pabendicionan Kanimo...*
> *Sa ngalan sa Amahan, Sa Anak, ug Sa Dios Espiritu Santo...*
>
> Together with the resurrection of our Lord Jesus Christ,
> I humbly ask Thou Lord, that Thou bless this medicine that I had prepared/made...
> In the name of the Father, and of the Son, and of the Holy Spirit... (Free translation)

After the ceremony, the *mananambal-maestro* starts distributing the *minasa*.

The names of each *mananambal* are called one by one and their contributions to the preparation of the *minasa*, such as the blessed candles, *tuba* or vinegar, honey, honeycomb, and the like are acknowledged. As each member's name and contribution are mentioned by the recordkeeper, he/she comes forward with a container (tin cans or plastic) to claim his/her share of the concoction. Members of the group (*mananambal* and apprentice) whose names are listed in a notebook by the daughter of *Mananambal C* are the first to receive their portion of the *minasa*. The quantity of *minasa* that one receives is in proportion to one's contribution, i.e., the more contribution, the bigger the share. Those who give more, for instance, may get as much as three to four scoops of *minasa*

to last them till the following Holy Week. Those members who provided labor in the preparation of the medicine are the next to be served. They include those who were involved in procuring some of the items during the *pangalap* for six consecutive Fridays. Each gets a couple of scoops. After all the members have been served, spectators and other individuals get their turn to obtain their share of *minasa* by contributing an amount of PhP5.00 or more. Usually everyone receives a scoop of *minasa*. It must be mentioned, however, that although the *mananambal-maestro* does not put a set price on this medicine, the quantity of *minasa* that one can have is also in proportion to the amount of individual donation. To facilitate the collection of the contribution, the amount is put inside the owner's empty container, a small tin can or coconut shell. Mainly because the *minasa* is prepared only once a year, participants and observers are equally eager to get their share of the present concoction.[13]

The *minasa* ritual of *Mananambal C* finally ended at about 5:00 in the afternoon. At this time the crowd slowly dispersed and the ritual place became deserted. Also at this time, nonresident *mananambal* started packing their things and prepared for the trip home. Before leaving, they checked their supply of *inadlip* and other medicinal herbs to make sure they have enough to last a year until the next Holy Week. Spiritually invigorated and restocked with the essential paraphernalia for their healing practice, the *mananambal* finally headed home. The effectiveness of their *panambal*, according to Pontiñela and Reynolds, "...depends upon the amount [*sic*] of belief the people themselves have in these beliefs and practices" (1971: 95).

An interesting incident that happened after this particular ceremony in the house of *Mananambal C* in 1998 is worth mentioning here for its glimpse into some aspects of the healing beliefs and practices of the *mananambal*. This story was shared with the crowd by the *mananambal-*

maestro and one of the visiting *mananambal* from Zamboanga del Norte. This story revolved around an incident that happened the night before Good Friday of 1998. This story is worth telling and here are some of the salient details of that narrative, in free translation, as recounted by the *mananambal:*

> The daughter of a prominent family and politician in the province of Siquijor fell victim to the mischief of some spirits (*engkanto*) and disappeared mysteriously for some time. It was reported that earlier in the afternoon, she came to the house of *Mananambal C* to accompany a group of media people who wanted to cover the ritual activity. During this time, she was seen with her friends in the very same wooded place where the cooking was done. Before her mysterious disappearance, she was seen by some people swinging the vines dangling from the big trees in the area. According to some witnesses, she exhibited rather strange behavior and showed signs of not being in her proper mind. Later, she was reportedly spotted walking away from her companions, heading toward a narrow dirt road seemingly without direction. When the *mananambal* learned of this incident, they secretly performed a ritual among themselves designed to overpower the *engkanto* believed to have abducted the victim. It was almost dark when she was finally recovered, looking physically exhausted. According to the *mananambal*: "Had the rescue come later, it would have been difficult to save her once the *engkanto* had her completely under their spell.... This area has lots of caves and we don't know which cave to go to. Besides, it was already getting dark. This is the first time that an incident of this kind happened here." A *palina* (ritual fumigation) was immediately performed to relieve the victim of baneful influence. To protect her from the *engkanto,* she was made to wear a *habak* (amulet), especially prepared by the *mananambal-maestro.*

Whether this incident did indeed happen is a matter of speculation, but to the group of *mananambal* and their followers, there was no question in their minds that it was real.

Inadlip and Other Uses

The leftover *inadlip* can be used for other purposes. For example, some of the "good" *inadlip* that are not used in the preparation of the *minasa* are placed in small plastic bags and sold at the *mananambal*'s house. They may be mixed with inexpensive alcoholic drinks such as Vino Kulafu or *ginebra* to make an invigorating drink. When taken before meals and before going to bed, a spoonful of this drink is believed to restore one's health and vitality. Consequently, this drink is especially recommended for the elderly. It is replenished by continually adding liquor into the bottle.

Leftover *inadlip* may also be used as ingredients for the *sagradong lana* (sacred oil). Prepared by the *mananambal*, this medicinal concoction is made from oil extracted from a *bugtong* (lone coconut fruit) facing east. According to Arens (1956), "...[t]he best time for picking the coconut fruit is at twilight and in weather that suggested loneliness. The sea breeze should give a chilling touch and the moon should shine like a perfect marble ball" (1971: 99). However, since most people do not have the time to look for this special coconut fruit, they would rather buy ready-made medicinal oil prepared by the *mananambal*.

Nevertheless, while some people prefer to buy only the *lana* (oil) without the *inadlip* ingredients, others choose to buy only the *inadlip* materials and mix them with homemade oil later. The *inadlip* have to be dried first before they are mixed with coconut oil, pref-

erably extracted from a single coconut facing eastward. The mixture (*inadlip* and oil) is ready for use after six to seven days. According to *Mananambal-maestro C,* any homemade oil may be mixed with the *inadlip* as long as the oil used is not from a bunch of nuts facing west. There is no taboo in using the same homemade oil to fill the medicinal oil (i.e., combined *inadlip* and blessed oil) originally obtained from the *mananambal* during the Holy Week. According to the *mananambal,* the medicinal oil will remain potent.

During the 1999 field work, *Mananambal C* showed the container of his medicinal oil, an old liquor bottle containing *inadlip* of various herbal ingredients. According to him, he inherited this bottle from his wife's maternal grandfather who was a *bantugang mananambal* (noted healer) in Siquijor in the past. The curative power of this medicinal oil is enhanced by adding more oil and *inadlip* to the bottle during Holy Week. From this "mother container" small bottles of oil about the size of a 25 ml Efficascent or Johnson's Baby Oil bottle are made available to interested parties.[14] According to *Mananambal C,* a few drops of this sacred oil on the *minasa* during *palina* or fumigation will prove efficacious in warding off evil spirits. This oil is also believed to possess healing properties capable of curing *buyag-buyag* (skin rashes, itchiness, skin eruptions, and skin pain inflicted by displeased or malevolent spirits) by massaging a few drops of it on the inflicted part. It could likewise be used for external purposes as *haplas* (lotion) on any skin disorder caused by insect bites. If internal ailments, such as poisoning or stomach problems occur, a drop of this oil mixed in a small amount of warm water may be taken. Allegedly, this oil will bubble when witches or *dautang espiritu* are in the vicinity of the victim. Its special properties are said to make the witch feel uneasy and itch all over the body thus driving her/him away from the holder of this oil. A similar effect is said to be felt by a *hiloan,* a practitioner of sorcery who uses certain methods of magical poisoning techniques called *hilo* (poison) to destroy his victim (Lieban 1967: 22; 36). A few drops taken orally, this oil is said to be an antidote against this kind of poisoning.

Afterword

Given the widespread popularity among traditional healers of this annual event, it is not surprising that the Siquijor Holy Week rites attract not only old-timers but new faces as well. Just as conspicuous at this event is the absence of familiar faces. For instance, the 1999 research noted that two of *Mananambal B*'s disciples whom the 1998 research team met were not present for that year's celebration. Yet, even if there were other reasons for this absence, for traditional healers steeped in the well-known Siquijor lore, there is only one explanation: death by sorcery. Since it is widely accepted that a *mananambal* will never try to miss this important event, his absence could only be due to his untimely death. Thus, the group of healers who provided Mascuñana with information were convinced of only one thing—that the two missing *mananambal* in the 1999 Holy Week celebration could have fallen victims to malign magic or sorcery. *Mananambal B* opined that this might have happened because the *mananambal* were still neophytes in the art of healing and were unable to protect themselves from possible counter-sorcery. He speculated that the illness the missing *mananambal* had caused on someone may have been cast back (*gisumbalikan*) at them by another more powerful *mananambal*.

This belief persists even more strongly to the present time not only among the circle of traditional healers but their followers as well. Similarly, the Holy Week rites and rituals have been passed on from one generation of *mananambal* to the next, surviving in time with expected variants as new and younger generation of *mananambal* takes over the trade, and modern technology such as the media continues to encroach into the

ritual field, attracting even more followers and believers. Interestingly, the entry of television and film has given these once hallowed rituals both national and international attention, winning for them not only a growing following but also serious academic interest from scholars and researchers fascinated by the subject. For their part, the *mananambal* themselves seemed to have understood fully the implication of media presence on their reputation and appeared to have taken advantage of this media exposure to add a bit of show effects on their rituals. It is too early for this paper to speculate on the extent of media influence on the changes that have taken place in the ritual practices, but it is mentioned here to provoke interest on the subject and suggest further directions for investigation and discussion. A critical study of these vital interconnections will be the topic of the next paper on this subject.

Acknowledgments

The writers are particularly indebted to the respondent-*mananambal* for making themselves available for observation and interview and for allowing the team to take photos and video coverage of their respective ritual practices. Without their kind cooperation this study would not have been possible. Narciso Omandam of Barangay Cantabon, Siquijor, a close relative of one of the *mananambal,* shared his insights with us about *panambal* in the locality. Special thanks go to our research student assistants, Demberge A. Caballes, Alex S. Baena, and Mark Percy L. Abjelina, for their invaluable assistance during the field work. Similar thanks also go to Ruel Acain, our transport driver and new friend, who provided able direction and useful information which facilitated visits to our respondents on schedule. Dr. Christian K. Schales, a colleague and member of the team, deserves most of the credit for generously sharing his resources that inaugurated this research project, his professional expertise, and encouragement.

Notes

* Photos and digital imaging are by Christian K. Schales.

1. The research team was composed of Dr. Christian Karl Schales, Prof. Rolando V. Mascuñana, Dr. Ceres E. Pioquinto, and two student assistants, Demberge A. Caballes and Alex S. Baena. The first field work was conducted in Siquijor during the Holy Week, April 9 to 12, 1998. The following year, Holy Week of April 1 to 3, 1999, a follow-up observation by Mascuñana and a graduate student assistant, Mark Percy L. Abjelina, provided additional information to the previous data set gathered in 1998. During this field work, the researcher and his assistant lived in the house of one of the respondent-*mananambal* and carried out the research using the participant-observation technique. This time, visiting *mananambal* were included as respondents but their responses are not yet presented in this report.
2. Elderly beach personnel at Little Islander's Paradise Beach in Sandugan, Larena, also provided valuable information. The driver of our hired jeepney was also a good source of information having driven patients to the *mananambal* in the past.
3. The town of Siquijor is the capital of the province. It is the largest and the most populated of the six municipalities. It became a municipality and the first parish to be established by the Spaniards on the island in 1794 although as early as 1790, the Spanish priests were already in the island. As population increased, Siquijor's barrios grew into towns and parishes. One is Cano-an, also Can-oan, now the town of Larena (1836) named after the late Governor Demetrio Larena of Negros Oriental. The town of San Juan (1863) was formerly called Campilay, Capilay, also Macalipay. The municipality of Maria (1877) was known as Cangmeniac. Enrique Villanueva (1925), named after former Legislator Enrique Villanueva from

Negros, was originally called Talingting (after the bird). At that time, it was a barrio of Cano-an. Cano-an grew to become the town of Larena today. The town of Lazi (1857) used to be called by the natives as Cantambo or Tigbawan, after a species of tall grass (*Saccharum spontaneum* L.), that thrived in sandy or gravelly soils in Lazi's bay. The word Lazi is a phonetic corruption of the Spanish "La C," believed to have been derived from the town's shoreline which appeared to form the letter "C."

4. Earlier studies done on Barangay San Antonio included the 1991-1995 field research of Kazutoshi Seki, an assistant professor in the Institute of History and Anthropology of Tsukuba, Japan. Mascuñana had the opportunity to meet Seki, who, prior to his 1991 research in Siquijor, visited the Silliman University Anthropology Museum to look for available information about the island, as well as view the museum's ethno-medical collection from Siquijor. Seki, who spent a total of twelve months within a five-year period (1991-1995) of research, was invited on one occasion to give a lecture about his island experience and research in Mascuñana's Folklore class at Silliman.
5. More *mananambal* have been identified in the 1999 observation.
6. For confidentiality, the names of the respondent-*mananambal* are not divulged in this study. Mention, however, is made of the place where the respondents live.
7. Usually a spirit (*engkanto* or *ingkanto*) with whom the *mananambal* has a friendly relationship. They are believed to act as the supernatural sponsor and spirit guide of the *mananambal* and the source of his power to diagnose and cure ailments. However, they are alleged to also cause illness and death on someone on the intercession of the *mananambal*. One may enlist the help of the spirits or *engkanto* by offering them rituals or sacrifices.

The *mananambal* has a yearly obligation to perform offerings so that the relationship is maintained. Patrons of *mananambal* also include God, Jesus Christ, Virgin Mary, Sto. Niño, and other saints.

8. For more information on the ritual search of *pangalap*, refer to Vista's detailed study (1978: 69-72).
9. Among these plants considered are: *alipata* (*Excoecaria agallocha*), *badyang* (*Alocasia macrorrhiza* (L.) Shott.), *bagacay* (*Schizostachyum dielsianum*), *balalanti* (*Macaranga tanarius*), *balikbalik* (*Croton* sp.), *gabi* (*Colocasia esculenta* (L.) Schott.), *gusoguso* (*Euphorbia tirucalli* L.), *kanomay* (*Diospyros multiflora*), *mangungkong* (*Celtis luzonica*), and *sorosoro* (*Euphorbia neriifolia* L.).
10. Mascuñana counted 18 male participants composed of 11 adults (including the researcher and his student assistant and a cousin of the student assistant) and seven children.
11. The candles used for this purpose have to be blessed during the February Feast of the *Candelaria* or Candlemas, a Catholic religious festival in honor of the presentation of the infant Jesus in the temple (also the feast of the Purification of the Blessed Virgin), when candles are blessed before mass every February 2. As an official rite, "The Blessing of the Candles," takes place forty days after the birth of Christ. Traditionally, these blessed candles were meant to be lit in the event of a calamity or epidemic such as thunder, lightning, fire, or earthquake for the protection of the family.
12. It is considered a propitious direction where the sun rises. It symbolically means rebirth or a "new life" and hope. Extra care is also observed that, when harvesting, the nut should not fall to the ground. No taboos, however, are observed when this nut is processed. The meat and the water are considered therapeutic. The *sapal* are good for the hogs. The *lunok* is medicinal as

well. The husks and shells are considered good fuel for *palina* while the shells can be made into pendants for amulets (luck, charm, or protection).

13. In the 1998 research, both Mascuñana and Pioquinto were each able to get a scoop of *minasa* from *Mananambal B* and *C*.
14. In 1999 Mascuñana was able to obtain a small bottle of this oil from *Mananambal C*. During the 1998 research, both Mascuñana and Pioquinto were able to obtain some oil sample from *Mananambal D* of San Juan.

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LABOR FORCE PARTICIPATION OF CHILDREN IN SELECTED FISHING VILLAGES IN NEGROS ORIENTAL[1]

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Abstract

In the last decade or so, the phenomenon of child labor has grown to worry proportions. A survey by the UN Labor agency indicated that 73 million children betwe the ages of 10-14 work as child laborers. The report singled out Asia as the worst area working children where 44.6 million of them work in different occupational sectors. In order assess the extent of children's participation in the labor force in this country, this study do ments the experiences of child workers from selected fishing villages in Negros Orienta commercial fishing industry. In addressing this issue, this study probes into the social, e nomic, and cultural conditions underlying the phenomenon of child labor and examines t factors that impel children to seek gainful employment despite their tender age. The th case studies in this report not only provide a grim picture of the exploitation and abuse ch workers experience at their place of work. They also uncover the insidious process of recr ment, including the complicitous involvement not only of government agencies charged protect children, but of parents themselves who are driven mainly by desperate econo situation. From the findings of this study, a number of recommendations have been propos Foremost of these is the launching of an awareness campaign for the protection of childre rights among the children's own families. Corollary to the awareness campaign is the call just for the strengthening but specifically for the implementation of legal measures aga recruiters and companies hiring children for labor. Recognizing the important role of edu tion in ensuring the future of children, the study also urges for the introduction of more r evant programs into the curriculum aimed at minimizing drop-out rate as well as provid alternative opportunities for drop-outs and school-leavers. The findings of this study prov support for the premise that if human beings have to be effective in their care for the earth a in their participation in environmental protection, they must be engaged in the protection their own children from exploitation and abuse.

"Today's child worker will be tomorrow's uneducated and untrained adult, forever trapped in grinding poverty," says the director general of the International Labor Organization. More than 13% of the world's children work, according to a United Nations report. The survey by the UN labor agency says 73 million children aged 10 to 14 are known to be employed. Taking into account younger children and girls working as domestic servants for which figures are not available, the real number of child laborers is likely to be in the hundreds of million ("UN Report," 1996).

The worst area for working children is Asia where 44.6 million children are employed, making up 13% of the child population. In the Philippines, child laborers may be found in all economic sectors, although majority or 80% are in agriculture. Special studies on child labor, undertaken from 1987 to 1991, reveal the participation of working children in the following occupational sectors: 33% in agriculture, 23% in services, 15% in crafts production, and 13% in sales. These proportions were taken from a total sample of 8,986 working children in 11 regions of the Philippines and in 25 provinces (Torres, 1995). In a worrying trend, child labor is seen by families as a way of supplementing the family income rather than as a means of helping the child acquire skills useful for the future and more.

Negros Oriental has been identified by the Department of Labor as one of the top three provinces sending child workers to big cities like Manila. Locally, as one moves from upland to lowland and coastal communities of the province, one invariably notices children below 15 years of age actively involved in paid or unpaid work in upland and lowland agricultural areas, in small and large-scale industries, as well as in fishing communities.

Writing from a psychosocial perspective, Torres (1995) defines childhood as

> a period of dependency, a time when younger members of a family need the sustenance, care and protection of older members for their survival.

According to the same study,

> dependency implies a degree of helplessness and inability to take care of all of one's needs without adult support. The profile of children at work in our

> communities today challenges the notion of childhood dependency. Perhaps, dependency relations in marginalized families living below the poverty threshold is not to be viewed simply in economic terms but more on the need by children for continuing psychological and emotional maturity. (Torres, 1995)

Basic to the preservation of any form of life is the quality of care the species give their young. If human beings have to be effective in their care for the earth and in their participation in environmental protection, they must be engaged in the protection of their own children from exploitation and abuse.

The Present Study

This study covers the fishing communities in Manjuyod, Bais, Tanjay, Amlan, Sibulan, Dumaguete, Bacong, and Dauin. These fishing villages form part of the learning sites under the Coastal Resource Management Project (CRMP) in Negros Oriental. What factors drive children to participate in the labor force? To address this issue, this study documents the social, economic, and cultural conditions underlying the phenomenon of child labor and examines the factors that impel children to seek gainful employment despite their tender age. Specifically, this research activity aimed to (1) identify the causes behind children's participation in the labor force; (2) know the living and working conditions, time spent in work, management of earnings, occupational illnesses, dangers and hazards of work, access to schooling and other related information; and, (3) describe the attitude of sample respondents towards child labor and their view of the future.

Two main approaches have been used in this study. The first is the qualitative approach which is useful in examining the phenomenon of child labor in a big fishing industry. For this purpose, three cases were studied to provide qualitative information on the involvement of children in a commercial fishing venture. The case documentation was done to record stories of selected child workers. This data collection strategy allowed for a deeper understanding of the child labor situation from the child worker's perspective.

The second, the quantitative approach, used a survey method to cover a bigger number of children in fishing households who are into a variety of tasks to help supplement family income. One hundred fourteen (114) children between six to 17 years old allowed the researcher to draw survey data on the nature and extent of coastal children's participation in the labor force. The National Statistics Office (NSO) Child Labor Survey Questionnaire was administered to obtain information about the household and its working children in the five to 17-year age bracket.

There are two main parts in this report. The first section presents the cases of three child workers in a commercial fishing industry. The second part outlines the results of the survey done in September-October 1997. The results of this study are expected to have far-reaching implications to coastal resource management in terms of policy formulation and future research directions.

Children at Sea: Work in a Big Fishing Industry

"Horror Stories at Sea," "Abused Fishermen Rescued, Return Home" are two of the several headlines in a series of reports published in the *Philippine Daily Inquirer* and its supplement, *The Inquirer Visayas*, in March and April 1997. These reports described the alleged maltreatment of 47 boat workers from Negros Occidental on a fishing vessel owned by A.S.O. Fishing and Development Corporation from Cebu. The reports specifically mentioned the presence of minors on the vessel. According to the report, these minors were hidden in the boat's *bodega* whenever representatives of the Philippine Coast Guard conducted inspections of the boat's crew and cargo.

Results of the interview conducted for this case study

revealed the violations of Article 139 of the Labor Code (particularly on the prohibition in hiring workers below 18 years in hazardous work) in the operation of these large fishing vessels engaged in *muro-ami* fishing. According to a 1989 PFDA report, minors are preferred in *muro-ami* work "because they are more daring, easier to coach and susceptible to discipline... That they consume less food and occupy less space than adults make them an even more practical choice." Just recently, a local paper published a plea mothers made on behalf of children who have disappeared and were never seen again ("Three Mothers," 1998).

The Unida Fishing Development Corporation (not its real name), a fishing firm here in Negros Oriental, has been allegedly recruiting fishermen from the different towns and barrios of Negros Oriental. Unida is said to have connections with the A.S.O. Fishing and Development Corporation because its owner is married to a member of the clan who owns the latter firm. The Unida's establishment is located in the barrio of Maayong Tubig, a barangay located south of the city of Dumaguete. The Unida started its operations in December 1995 and its present fleet reportedly consists of a total of 15 fishing vessels.

The Recruitment Process

A reliable informant who used to hold a key position in the fishing operation of Unida provided the information regarding the process of recruiting fishermen. According to this key informant, a group in a boat used to comprise 470 to 500 fishermen. At present, however, the number is limited to 253 to avoid overloading. These fishermen were recruited not just from the coastal towns and barrios of Negros Oriental but also from the uplands where most of the young men and boys on these fishing boats come from. This is especially true of boys coming from farming backgrounds in the uplands of Ayungon, Bindoy, Maningcao (in Sibulan), Balugo, San Jose, and Siquijor who are easily lured by the prospect

of money that fishing offers. These boys are only too aware that earnings from farming can barely cover the family's daily needs. Besides, the area of land they cultivate is so small it cannot possibly produce enough to meet the family's need for cash. Sometimes, recruitment extends all the way to Negros Occidental in cases when more young men are needed on the boat. Interestingly, it has been observed that the regular fishermen coming from the fishing villages of Dauin and Apo Island do not participate in these deep-sea ventures. Further interview revealed that these fishermen have been warned about the dangers of *muro-ami* fishing by older relatives—grandfathers and fathers—who were said to have experienced this kind of fishing in their younger days.

To attract prospective boat workers, recruiting agents usually offer cash advances locally known as *bale* as incentive for signing up. This money, usually as much as PhP2,000, is left with the boys' families. The recruitment procedure also includes no stringent requirements except for the ability to swim. Yet given the irresistible attraction of the cash incentive, even an applicant who does not know how to swim is often constrained to lie about this inability for the purpose of obtaining the *bale*. For their part, recruiters deliberately overlook this particular requirement so that the boat can leave immediately. Information provided by the key informant also highlighted the role of parents in the recruitment process. More interested in getting their children to help bring in additional household income than in sending them to school, parents themselves allegedly accompany their sons to these fishing boats. The key informant revealed that despite their knowledge of the requirements for this kind of job, many parents collude with recruiting agents by lying about their sons' age and ability to swim in order to avail of the cash advances they desperately need for their subsistence.

The Work at Sea

A person becomes a member of the fishing group

as soon as he signs up for a 10-month contract with the establishment during which time he is not allowed to visit home for any reason at all. For the new recruits, their life as fishermen begins as soon as the boat goes out to sea and an order is given for them to dive in the water. Since many upland boys are unable to swim, they flounder in the depths and predictably scream for help. Only then are swimming and diving lessons imposed for two months until the boys learn to dive and swim. During this two-month training period, the boys are considered "absent" from their regular work as divers and their "absence" means deduction from their wages.

Diving can entail going down to a depth of around 30 feet. On such occasion, boys are warned not to go straight up to the surface from a deep dive. As explained by the source, boys are asked to swim around and slowly make their way upwards until "the pores of their skin close." The informant said that if the skin pores are not yet closed and they, upon getting out of the water, are *maigo ug hangin* (hit by the breeze), the boys would likely faint and die. *"Ang mga scuba divers man gani ga sul-ob na ug suits apan hinay-hinay pa gani sila ug adto sa taas"* (Even scuba divers who have wet suits surface gradually), the informant says. When a boy dies onboard the ship, his death is reported to the Manila office as a case of drowning.

They start diving at 6:00 a.m. up to 3:00 or 4:00 p.m. With whatever time and daylight left before sleeping, divers have to clean, fix, and maintain their fishing gear and equipment for the next day's work. The fishermen are not given any cash on board since food and medicine are supposed to be provided them on these boats. When they avail of these items, however, the cost is deducted from their wages. Personal items such as soap and cigarettes are to be purchased on cash basis. In order to pay for such things, the fishermen are allowed to make dried fish out of the small, discarded fish, such as *bagis,* which have been sorted out from the rest of the catch. The fishermen

then sell these dried fish whenever the boat goes ashore, usually in Palawan islands.

According to the source, when a worker falls ill while on a fishing trip, he and the company share the actual expense for medication. The Unida pays 50% of the cost and the sick fisherman shoulders the other 50%. This amount is deducted from the worker's earnings. If one needs further medical attention, he is not allowed to go home to recuperate. Instead, he is brought to a hospital in Manila, and supervised by the company until he is well enough to be sent back to the Unida to resume his duties.

Boys who can no longer endure such a "way of life" on the boat, try to escape. If they are successful in getting away, their employers first try to see if the boys' wages or earnings are enough to pay off cash advances made by the boys' family back home. If they still owe the fishing company some amount, the boys are hunted down and put in jail once caught. If they cannot be found, the employer would send his men to the boys' families and confiscate animals or other properties of value (such as carabaos, cows, pigs or chickens) as payment for the amount their sons owe the Unida.

The following profiles taken from interviews with the boys aged 17, 16 and 15 will give a clearer picture of the child abuse in the fishing industry in Negros Oriental which uses a modified *muro-ami* fishing practice. To protect the identity of the respondents, different names are given them.

Case 1: Juan

Juan, who lives in Sibulan, is the youngest of nine children. His father is retired and his mother is a housewife. All of his brothers and sisters have either finished college or are still studying. Compared to his siblings, however, Juan was an underachiever in school and was within three months away from finishing high school when he joined the Unida at the age of 17. According to Juan, the immediate reason for this decision was his mother's refusal to give him money to buy materials for a class

project. Juan was convinced that getting money for a project would make him complete the school requirement and earn a higher grade in the subject. For her part, Juan's mother found his demand unreasonable and was incensed by the notion that Juan expected his parents to provide him anything he asked for, unlike his older siblings who were deemed to be more judicious in asking money. Juan resented his mother's refusal and, overwhelmed by a sense of rejection and anger, he signed up with Unida to work for 10 months as a *tig-alabog* (fish scarer) and received PhP2,000 as cash advance. This was his very first job.

Six other young men from their place also signed up for the job, but two of the men escaped early on their trip. While on the boat, Juan had to cope not only with the feeling of being so distant from the safer company of relatives and friends but also with the appalling working conditions on the boat. His sleeping area located near the engine was very hot and exposed to the elements. When it rained and became windy, he had to sleep with wet blankets all night long. At first, the big waves made him seasick and left him without appetite for a week. He developed high fever and suffered from a very dry cough. Because of his condition, he was allowed to stay in the boat and excused from diving, but not before the *maestro pescador* (head of the fishing crew) had made sure that he was really sick by boxing and hitting him on the head. Defenseless, Juan fell on the floor, too weak to get up. Juan learned later that this was the *maestro*'s way of determining whether a fisherman was really too sick to dive or simply malingering. And because Juan was not able to dive, his "absence" was deducted from his wages.

While at sea, boat workers like Juan confront daily countless fears, both real and imagined, as they face dangers in many forms. For instance, during a fishing activity in the waters of Indonesia, Juan feared seeing sharks and *alawig* (sea snakes), being trapped by giant clams, and drowning.

Unable to change the course of his life at this stage, Juan had to learn to cope with these fears and strive to be very careful. Once, Juan figured in a near-fatal accident when the compressor hose which was wrapped around his arms slowly loosened as he and other divers went deeper and farther from their *banca*. Because of the strong undercurrent, the hose got caught among the corals (which they call *bato*) and dragged Juan along. The timely intervention by the *segundo* (assistant to the master fisher), who witnessed Juan's plight and came to his aid, saved Juan not only his arm but his life as well. In another incident, Juan was a witness when his friend was tugged by a strong underwater current and almost drowned. Blood was coming out of this person's ears when he was brought to the surface and given immediate medical attention. Juan's friend was fortunate to survive this accident with his hearing intact.

It appears that the fishing company could decide to terminate their fishing activity anytime for any reason, even before the workers' contract is over. Juan and his group were just finishing their eighth month of fishing when Unida decided to cut short their working time. The reason was that they were not getting enough fish as expected. Feeling short-changed (*na-alakanse siya*), Juan swore never to sign up again. Having learned a painful lesson from this experience, Juan felt it his duty to warn his friends to stay away from this type of fishing or a similar type of job just for the money. According to him, he would encourage them to finish school instead, as he plans to do himself, and later find a more decent way of earning money.

Case 2: Pedro

When recruiters came to their place in Bantayan looking for "young men" of all ages to join Unida, 15-year old Pedro signed up as a diver. Pedro's father is a casual worker in a construction company while his mother works as a domestic helper for one of the families in the neighbor-hood.

His one older sister is studying in high school. Pedro stopped going to school after finishing Grade 4 because he wanted to have money for his own needs. His parents were not able to convince him to go back to school and continue his studies. As he was unable to find a job right away, Pedro stayed home in the meantime and helped in the household chores such as feeding the pig, sweeping the floor and grounds, and cleaning the house. After his duties, Pedro would go out with his friends and neighbors who were also out of school. When Pedro was 14 years old, he got his first job as a timekeeper in the construction company where his father worked. However, this job lasted only for a month.

Joining the Unida was his second job. Because Pedro longed for adventure and loved diving at the beach near their place, he thought this was his chance to experience what he had always wanted to do while earning money at the same time. A cash advance of PhP2,000 was given to his family when he was about to join the other crew on the fishing boat. Pedro was told that this was going to be deducted from his earnings and his *balanse* would be given to him at the end of 10 months. Since his parents did not really approve of the time he spent with his friends loafing and doing nothing, they readily consented to let him go and earn money.

Pedro joined the Unida in December of 1996. According to him, the crew traveled for six days from Dauin to the seas of Indonesia and spent four days fishing and diving. Shortly after, they went back to Palawan because their boat's "visa" to do fishing overseas had expired. For one month they fished around Palawan waters. Since there was not much fish harvest (*dyutay lang kaayo ang isdang nakuha*), the crew officials walked-out and left their boat. To the fishing crew, low fish harvest meant no income for them since wages were based on their catch. The other crew members, including Pedro, were forced to leave the boat without receiving any form of compensation. They

were told simply "quits *na*." This meant that their one-month work was equivalent to the PhP2,000-cash advance their families got and they themselves no longer owed the company any money. Leaving their boat penniless, Pedro and his friends were stranded in Palawan. Some of the fishermen from their group joined the other Unida fishing boats stationed there. Pedro, along with some of his townmates joined some fishing groups involved in dynamite fishing. In order to save enough money for fare to go back to Negros Oriental, they also took up construction jobs on the side.

Now 16 years-old, Pedro is employed in the same construction company where he had his first job, "now holding a shovel instead of a pencil," he says jokingly. His only ambition in life is to work and earn money. When asked if he would join these large fishing vessels again, he said he would if the work offers better pay.

Case 3: Andres

Fifteen year old Andres is the second child of five boys. His family lives in the upland portion of Ajong, Sibulan. His father is a farmer and his mother is a vegetable vendor in the town market. His three younger brothers are all in school while his older brother has been working with Unida for the last three years and now has been promoted to the position of a rower of a small boat (*tig-dala ug banca*), a responsibility that is relatively free of direct risk or danger. Although Andres finished Grade 6, he did not want to proceed to high school. Instead, he wanted to start earning his own money by following the footsteps of his older brother and joining the Unida. Although his parents, especially his father who experienced this kind of work during his younger days, did not favor this decision, they could not dissuade Andres from joining this income-generating venture.

Assured by the presence of his older brother in the fishing vessel, Andres signed up for a 10-month contract as a fish scarer and received a cash advance of PhP1,500 from Unida. When they joined the

Unida, Andres and the other minors were told to change their respective ages indicated in their residence certificates or community tax certificates (*sedula*). Moreover, they were coached that if a member of a government Task Force inquired about their ages, they were to answer that they were already 20 years old. Once, when the local Task Force stopped their boat and conducted inspection on board, Andres and all the other minors were hidden inside "drums." They were still found, however, but in order to stop the Task Force from reporting the incident, Unida allegedly gave grease money (*naghatag na lang ug lagay*).

While weather forecasts are available via the radio, unexpected storms do occur and catch boats unprepared in the middle of the sea. When this happens, boats are not always able to "hide" or take shelter right away. In one of these harrowing experiences, Andres was a witness to an incident he would never forget—the fishing crew fighting each other over a limited number of life vests on board. It was evident that life vests were such a scarce commodity on these fishing vessels that if a person managed to secure one, he had to arm himself with a *bolo* or any sharp instrument to make sure that no one would grab the life vest from him. During another storm, Andres saw three of his fellow boat workers, all of them brothers, drown one after another in high seas. As big waves and heavy rain battered their boat, one of the brothers lost his grip and his balance, and fell overboard. Seeing him floundering on the waters, the second brother threw out a rope for him to hold on to, but he, too, was carried away by the strong waves. Driven to desperation by his own inability to help, the third brother grabbed on to the end of the rope and allowed himself to be carried away by the elements to join the fate of his brothers.

Interestingly, despite his own firsthand experiences of tragedy at sea, Andres is not disheartened and has not been discouraged from working on these large vessels again. In fact, he plans to sign up with Unida in the next fishing season because, according to him, he needed the money. Moreover, seeing his brother's promotion in three years as an indication of success, he is determined to achieve the same thing for himself.

General Observations

First, of the three cases, only Juan was unequivocal about his decision not to work in the fishing boat again. On the other hand, Pedro and Andres were open to the possibility of renewing their contract because of financial reasons. This difference in attitude towards work seems to be largely influenced by the economic backgrounds of the respondents. Pedro and Andres come from families that do not have regular cash income while Juan's family members appear to have better chances at getting regular employment since most siblings have either finished college or are in college. Juan himself completed his third year of high school while Pedro finished Grade 4 and Andres completed Grade 6.

Second, minors (below 18 years) are still being hired for such a dangerous kind of work as *muro-ami* fishing, in direct violation of Article 139 of the Labor Code which sets the minimum age at 18 years for employment in hazardous undertakings. The same article explicitly provides that those between 15 and 18 years are eligible only for employment in nonhazardous work defined as "one where the employee is not exposed to any risk that constitutes a danger to safety and health."

Third, the ages in the young workers' *sedulas* are falsified. Moreover, they are instructed to state an older age when asked by authorities. As the findings reveal, *sedulas* are not always tamper-proof and do not reflect correct ages of residents. Furthermore, government task forces charged to protect children from exploitative work cannot be relied upon to carry out their task to the fullest, while recruiters and companies continue to entice cash-strapped families to avail of *bales* in exchange for the work of their children.

Spain was the weakest. Meanwhile, the other contending powers watched the turn of events with interest and behaved like vultures waiting to scavenge whatever they could in the event of the Spanish collapse.

Secondly, there was no strong, centralized state or dominant high culture in the Philippines prior to the colonial era. As a result, cultural conflict took on a lesser importance than the demand for national independence.[38] This might explain why a large number of Filipinos embraced Christianity rather willingly. When conditions in the 19th century allowed Filipinos access to education, a factor vital to the development of a political consciousness, they were quick to exhibit a maturity characteristic of revolutionaries and before long became leaders of revolutionary movements. On the other hand, the Muslims in the south had another experience due to this reason. Thirdly, in contrast to the indirect rule the British and the Dutch exercised on their colonies, the Philippines came under the direct control of the Spaniards, giving rise to all sorts of abuses and engendering hostilities among the natives. As a result, colonial enmity and hatred matured earlier in the Philippines than in those states which had retained autonomy.

The outcome of events showed that it was evidently the forces and politics of economics that spurred the negotiations between the Filipinos and Japan and among the imperial powers themselves. Within this framework, although the dynamic force of competition largely influenced the pace of new imperialism, consensus and dialogue played an even more vital role in consolidating and stabilizing the presence of the competing imperial powers in the rim. In this respect, the Filipinos exhibited an amazing naiveté, believing as they did that "the enemy of my enemy is my friend huh!" This naiveté was reflected in the fifty-paragraph manifesto drafted on January 29, 1897 by Jose Ma. Basa, A. G. Medina, and Doroteo Cortes which exposed the grievances of the Filipinos against the Spanish Government and asked for the armed intervention of the United Kingdom, Formosa, Japan, the United States, and Germany.[39] In wanting power of sovereignty from the Spaniards, the Filipinos found themselves unwittingly caught in the middle of a battle zone whose major players were themselves the contending parties motivated purely by the forces of the world market and economics and inflamed by the ideas of world supremacy. A case in point is provided by the Japanese refusal to help the Filipino Revolutionary leaders early on in the struggle for independence. Although it was the Japanese who gave the stimulus for the struggle for independence as well as kindle the growth of nationalism among the countries in the Western Pacific Rim, yet, owing to global rivalries and pressure from other contending power players in the region, Japan refused to help.

In relation to the American occupation, the leaders of the Philippine Revolution manifested a shallow grasp of the overall conditions in the Pacific Rim. The Americans rightfully believed in their right to inherit the Philippines and accordingly positioned themselves as adversaries of Spain. This they accomplished by aligning themselves with the aspirations of the Filipino nationalists. Although the intention itself was somewhat dubious, the move was considered practical from the American perspective. Unknown to many Filipino nationalists, the core idea of the US war against Spain was influenced by the need to assert the American position in the Pacific. Their interest in the Philippines was motivated mainly by a strategic need to establish a base from which their interests in China and the "Far East" could be protected.[40] No doubt they were cognizant of the strategic importance of the archipelago and the power it would generate to the power who will possess it. An interesting account from a diary of a French officer who witnessed the end of the Spanish empire and the coming of the Americans is valuable at this point:

Tuesday, May 17,1898
Philippines Strategy

An incomparable strategic situation now exists. Manila is the key to the Far East, being the geometric center from which all places radiate where colonies are of utmost importance to the powers with interests in the Pacific. With Manila as the center, having a radius equal to five days at sea, one can establish a circumference consisting of all the important commercial routes and all the trade between the north of Asia and the south of Europe, the Far East, Australia, and the United States. The distance from Manila to Hong Kong is the short common side of two triangles whose hypotenuse, in the case of the northern triangle, runs from Hong Kong to Japan and for the south triangle from Hong Kong to Singapore. The two lines which link Singapore and Japan to Manila are equal.

The Philippines is a sort of tropical Japan in much the same way that Japan is the England of the East. The Philippines represents the southern part of England, the fragmented area of the Azores. The strategic importance of the Philippines in the Pacific is superior to that of the Azores in the European context...[41]

Conclusion

Rizal's Borneo project and his Hong Kong school, the Hong Kong Junta, Filipino-Japanese negotiations, Aguinaldo's travels to Hong Kong and Singapore, the exiles in Guam and the Marianas, and other similar actions locate Philippine Revolution among the anticolonial movements that challenged the imperial powers in the Western Pacific Rim. As events in the region illustrated, the contending powers were busy jockeying for position in the Rim while the anticolonial campaigns such as the Philippine Revolution were taking place. Thus the stage that provided the backdrop for the Filipinos' struggle to gain sovereignty and self-determination was the same setting for the imperial powers' own battle among themselves for domination in the region. As the aftermath of the Philippine Revolution illustrated, the struggle for the acquisition of power may have been won less by violent actions as by the creation of deals, transactions, and negotiations. In essence, the Philippine Revolution and its Western Pacific Rim context is a discourse which represents and confirm the endless power structures of domination and subordination that characterize any given historical drama.

Notes

1. See Florentino H. Hornedo citing M.H. Abrows, in "The New Historicism and Research and Communication in the Human Sciences" (Manila: Ateneo de Manila University, 1996), 1.
2. Linda Hutcheon, "A Poetics of Postmodernism?" *Diacritics* (Winter 1983), 36.
3. Marshall, 148.
4. Michel Foucault, "Nietzche, Genealogy, History," *Language, Counter-Memory, Practice: Selected Essays and Interviews* (trans by Donald F. Bouchard and Sherry Simon; Ithaca: Cornell University Press, 1977), 151.
5. For a thorough discussion of New Imperialism, see R.R. Palmer and Joel Colton, *A History of the Modern World* (5th ed.; New York: Alfred A. Knopf Inc., 1978), 601-42.
6. H. Morse Stephens, "The Conflict of European Nations," *The Pacific Ocean in History: Proceedings from the Panama-Pacific Historical Congress* (San Francisco, 1915), 30-33.
7. Clive J. Christie, *Southeast Asia in The Twentieth Century: A Reader* (London: I. B. Tauris & Co. Ltd., 1998), 5.
8. Palmer, 601.
9. Palmer, 602.
10. Geoffrey Barraclough (ed.), *The Times Atlas of World History* (London: Times Books Limited, 1978), 240.

11. Barraclough, 248.
12. Hayase Shinzo, "Japan and the Philippines: The Southward Advance School of Thought and the Greater East Asia Co-Prosperity Sphere" (unpublished).
13. Nicolas Zafra, *Philippine History Through Selected Sources* (Quezon City: Alemar-Phoenix Publishing House, 1967), 142.
14. Florentino Hornedo, "The Roots of the Philippine Revolution in the Philosophy of the French Revolution" (furnished by the author), 22.
15. Margarita Mathiopoulos, *History and Progress* (New York: Praeger, 1956), 152.
16. Lecture of Dr. Florentino Hornedo in a Philippine Revolution course at the Graduate School of the University of Santo Tomas (September 19, 1997).
17. Palmer, 602.
18. This zone, for over two hundred years beginning in the 17th century, was the earth's principal center of what anthropologists might call cultural diffusion. This zone includes England, southern Scotland, France, the Low Countries, Switzerland, western and central Germany, and northern Italy.
19. Edward Farmer et al., *Comparative History of Civilizations in Asia* (London: Addison-Wesley Publishing Co., 1977), II, 702.
20. Woodbridge Bingham, *A History of Asia* (Boston: Allyn and Bacon, Inc., 1965), II, 352-53.
21. Bingham, 352-53.
22. Refer to Hayase Shizo's paper.
23. S.V. Epistola, "The Hong Kong Junta," *Philippine Social Sciences and Humanities Review* XXVI.1 (March 1961), 31.
24. Farmer, 702; and *Times Atlas of World History*, 247-48.
25. Farmer, 570-600.
26. Farmer, 570-600.
27. Palmer, 637.
28. W. E. Retana, "Testimony of Domingo Franco Y Tuason," Sept. 30, 1896, *Documentos Politicos de Actualidad no. 53, Archivo del Bibliofilo Filipino*, (Madrid: Viuda de M. Minuesa de Los Rios, 1897), III, 243.

29. For a very thorough and incisive study of Japan and the Philippines, see Josefa M. Saniel, *Japan and the Philippines: 1868-1898* (Quezon City: University of the Philippine Press, 1969).
30. Saniel, 182.
31. Saniel, 274-75.
32. *Rizal-Blumentritt Correspondence* (Manila: Jose Rizal National Centennial Commission, 1961), II, 435-36.
33. Zafra, 130; and Farmer, 568.
34. *Rizal's Political Writings* (Manila: Oriental Commercial Co., 1933), 321-22.
35. *Graciano Lopez Jaena: Speeches, Articles, and Letters* (trans. by Encarnacion Alzona, ed. by Teodoro Agoncillo; Manila: National Historical Commission, 1974), 350.
36. Farmer, 695-96.
37. Farmer, 697-98; and Palmer, 629.
38. Farmer, 699.
39. *Historical Calendar* (Manila: National Historical Commission, 1970), 16.
40. Clive, 54.
41. Lieutenant X (Aime Ernest Motsch). *The Diary of a French Officer On the War in the Philippines 1898* (trans by Marietta Enriquez de la Haye Jousselin; Manila: National Historical Institute, 1994), 33.

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TECHNOLOGICAL COMPETENCE OF PRACTICING PROFESSIONAL NURSES: AN EXPRESSION OF CARING

Rozzano C. Locsin

Abstract

This study was undertaken to determine the expression of "technological caring" of professional nurses who practice in critical and noncritical care settings. One hundred ninety-three professional nurses from a Southeast county of Florida participated in the study. The Technological Caring Instrument (TCI) was used to gather data. From the results, no significant difference was found in the expressions of technological caring among professional nurses who practice in critical or in noncritical care settings. However, raw data suggest that those who practice in critical care settings expressed more technological caring than those in noncritical care settings. Of these nurses, those with a baccalaureate degree in nursing had higher technological caring scores, while those with an Associate degree showed more technological caring than those with baccalaureate degrees early in their practice. This result suggests that as experience was gained, those with a baccalaureate degree showed more technological caring. Analysis of variance revealed that technological caring is influenced by education, areas of expertise, and years of experience (F=97.0199, p=0.000). Educational attainment was the best indicator for variations in technological caring (F=4.953, p=0.028). Reliability and validity testing of the TCI showed high internal consistency, construct validity, and split-half reliability. The current study shows that practicing professional nurses are technologically caring regardless of practice settings.

Nursing has been categorized into two major types of health care functions: technologically-demanding and supportive/expressive practices (Fenton, 1986). The former emphasizes technical or task-oriented functions, while the latter requires person- or care-oriented expressions constituting most of the independent functions. Various definitions of nursing in the 1960s and 1970s emphasized the supportive-expressive functions of nursing (Orlando, 1961; Wiedenbach, 1964; Henderson, 1964; Johnson, 1966; Travelbee, 1969; Rogers, 1970; Orem, 1971; Roy, 1974). Although a

universal definition of nursing does not yet exist, the expression of various supportive and expressive functions and perspectives of nursing are distinctly defined, affirming nursing as a practice discipline with influential roles for attaining or maintaining quality health care.

Professional nursing practice occurs in various settings. The two distinct areas are critical care (where patients are ministered to because of physiological demands, requiring high degree of intensive medical intervention and attention), and noncritical (where the less intensive physiological and medical care requirements of patients are secondary to meticulous nursing care). As a place where technological proficiency can mean care, the first setting is technologically demanding. Yet, the practitioners of nursing in this area may be perceived to be less caring. In contrast, the noncritical setting, though less technologically demanding, is generally recognized as a place where caring is practiced in actuality. In reality, however, the actual practice of nursing in critical care areas illustrates both caring through technological proficiency as well as person-oriented caring (Locsin, 1998).

The demand for technological competence among nurses in a variety of practice settings and the understanding of caring as the essence of nursing (Leininger, 1988) underscore the important role of technological competence in nursing and promote the use of technology in the delivery of care. In nursing, technological caring refers to the technical achievement of caring within critical care settings as a result of technological competence among nursing professionals while practicing nursing (Ray, 1987). To fully understand the interconnections between caring and technological competence in nursing, it would be useful to begin by revisiting some of the concepts about caring that have been introduced in various studies. For example, ontological, anthropological, and ontical issues about caring in nursing have been analyzed and synthesized to focus on its theoretical and practical values

(Boykin and Schoenhofer, 1990). Various ways of expressing caring in nursing have since emerged.

In his desire to illuminate the experience of the caring phenomenon, Mayeroff, in his book *On Caring,* describes the ingredients of caring behaviors as: "knowing, alternating rhythms, patience, honesty, trust, humility, hope, and courage" (1971: 13-27). Pursuing the same thought, he defined caring in a later work as a mode of helping the other grow (Mayeroff, 1977), echoing Leinenger's earlier notion of caring as the essence of nursing (Leinenger, 1975). Meanwhile, Paterson and Zderad's concept of "humanistic nursing" launched a movement that considers nursing as having not only a "supportive/expressive" function, but also as a process of care in which the whole person is recognized as an interacting human being and "the between" as the situation where the practice of nursing is lived (1988). For Paterson and Zderad, caring is also communicated in the authentic presence within a nursing situation. This stress on authenticity exemplifies the ontology of caring which views caring in nursing as a mutual human process. In nursing, according to Boykin and Schoenhofer (1993), the nurse responds to calls for nursing, and then nurtures persons as they live their hopes, dreams, and aspirations. This view of nurses as caring persons whose everyday lives are grounded in caring echoes the earlier studies of Watson (1985) which posited the idea of caring as the moral ideal in nursing.

Meanwhile, the anthropological aspect of caring centers on the question, "What is a caring person?" The 1987 book by Roach introduced the idea of caring as the human mode of being in which the attributes of compassion, competence, confidence, conscience, and commitment are an essential ingredient. Roach's presentation is significant not only for its emphasis on the importance of caring, but also for its suggestions on how caring can best be accomplished. For Roach, caring entails the capacity to care, the appropriate use of

these capacities, the eagerness and authenticity to answer the call of the other, doing or manifesting the ability to care, and performing the care competently. Roach argues that the ethical process towards achieving a level of competence begins at the point when the nurse reaches a comfortable level of technical competence while gaining knowledge and skills to make the right decisions about the uses and applications of technology. When this comfortable level of technical competence is reached, "the nurse can concentrate more fully on the needs of the patient and family" (1987: 169).

Of equal significance for this study is Ray's investigation into the role of technology in caring in the professional nursing practice of critical care nurses. She succinctly describes technological caring as "the experience of caring in the critical care unit [that] comes as a process of growth [where] technical achievement is one of the meanings" (1987:168). In the same study, Ray found that the process of value shifts in ethical and moral decision-making in nursing is part of the maturation process a critical care nurse undergoes in understanding the meaning of caring. Among critical care nurses, these maturation processes include dominant values such as one's belief in the use of technology in nursing practice, as well as judiciousness in the interpretation of such technology in the delivery of care. These concepts highlight caring as a concept that is not unique *to* nursing but rather *in* nursing.

According to Neighbors and Eldred, "there is an increasing body of evidence which indicates that nurses must be able to perform complex procedures and skills when providing nursing care. The rapid development of technology and its increased utility in health care have contributed to this phenomenon" (1993: 96). As these studies illustrate, both technology and caring are clearly integral to the valuable contribution of nursing in health care. In short, technological proficiency is an essential expression of caring in nursing. Because caring is

unique in nursing and because technological competence is an expression of caring in nursing, the extent of technological caring as expression of nursing needs to be recognized and further investigated.

Background of the Study

My interest in the topic of technology and caring in nursing was born out of remarks commonly expressed by practicing nurses, such as "there is no time left to care." Remarks such as these illustrate the feeling of frustration shared by nurses over their perceived inability to care for patients because other duties and responsibilities have priority over "nursing time." These priorities over "care" include, but are not limited to, documentation of care and the proficiency of using equipment, such as respirators, ventilators, and cardiac monitors. Comments like these from nurses succinctly demonstrate the persistence of the notion that nursing activities are simply activities involving physical presence and technical achievement.

In addition to the feeling of frustration, another predominant sentiment expressed by nurses is the sense of uselessness. When nurses reach the end of their work shifts without having been able to perform activities with the patient, they feel a sense of uselessness because they have failed to be with their patients. This situation further raises the issue of whether caring exists when nurses are technologically competent, or when they are able to perform the proverbial activity of "holding the patient's hand," or simply being physically present. Such a situation highlights the need to reconcile the traditional activities of nursing with technological adeptness as an expression of caring in nursing. When seen from this perspective, the notion of technological caring assumes a pivotal role.

The Technological Caring Instrument or TCI (Locsin, 1995) was developed to examine technological competence as an expression of nursing. The result of this study is aimed at building a data support for the development of a

form of caring in nursing that is based on technological competence, one that will promote the quality of nursing care, create new dimensions in the delivery of nursing care, and cultivate an enhanced appreciation for the nursing profession.

Data Administration and Collection

A descriptive research design was used in this investigation. As soon as approval from respective Human Subjects Institutional Boards was obtained, copies of the TCI were mailed to prospective respondents. The sample was composed of 193 licensed professional nurses who practice nursing in critical care and noncritical care settings and are employed in one of the three selected hospitals in Southeast Florida.

A packet containing the cover letter, demographic data sheet, the process consent form, the TCI, and a self-addressed, business reply mail envelope was prepared. The cover letter explained the voluntary nature of the study and the assurance of confidentiality, while the process consent form elucidated the extent of participation. A demographic data sheet was included as the second page while the succeeding five pages comprised the instrument. To facilitate retrieval of the documents, a self-addressed, business reply envelope was provided. Participants were given three weeks to furnish the information and return the instrument. Although no specific date for returning the copies was required, a relative time period was prominently indicated in the process consent form which allowed the participants to complete the forms and the instrument in their own time. Follow-up telephone calls were made to respective institutional contact persons regarding the status of questionnaire retrievals. With the success rate of questionnaires returned by mail generally accepted at between 30% to 40%, a 32% (193) return rate was considered acceptable. There were 603 copies distributed to employed licensed professional nurses of the three selected hospitals. Two of these

hospitals are nonprofit, private institutions with 350-450 bed capacity, while the other is a 300-bed, private institution that is a member of a group of health care companies. These three institutions were selected for reasons of accessibility, willingness to participate in nursing research, and their relationships with the host institution as clinical teaching sites.

From each of the hospitals, a contact person was identified whose task was to facilitate the approval of the study through their respective Institutional Review Boards and oversee the distribution of the questionnaire copies. In two hospitals, copies of the TCI were included in the participants' paychecks, while in the other institution, a volunteer was instructed to place a copy of the instrument in each participant's assigned mail box in their respective units.

The Sample

All professional nursing personnel in respective specialty areas were represented in the sample in order to approximate the general population of nursing staff. Of the 603 registered professional nurses employed in the three selected hospitals, 203 (33%) returned the copies of the questionnaire. Of these, 10 completed questionnaires were discarded because their respondents failed to sign the consent forms, bringing the total number of participating subjects down to 193. Of these subjects, five (3%) failed to indicate their educational attainments so that their responses were not included in the data set. The majority of the participants possessed Associate degrees in Nursing (74, or 38.3%), while 17 (8.8%) had diplomas in Nursing, and 59 (30.6%) had baccalaureate degrees in Nursing. Because graduate education in Nursing requires a baccalaureate degree in nursing, respondents to the categories of "earned credits toward the Master of Science in Nursing" (13, or 6.7%) and earned "Master of Science in Nursing" degree (7, or 3.6%) were combined with the BSN category to comprise the overall BSN group of 79 (40.9%)

participants. The responses of 18 participants who failed to signify their educational attainments were excluded from the data.

The participants' areas of expertise were reclassified into two sections: critical care (Medical and Surgical Intensive Care, Coronary Care, Telemetry, Neonatal Intensive Care, and Emergency Room), and noncritical care (Medical and Surgical Floor, Psychiatric area, Operating Room and Clinics, OPD, and Administration). Critical care had a total of 79 respondents while noncritical care had 60 respondents. Thirty-one (16%) respondents failed to indicate their area of expertise and their responses were not included in the data set. For this category, the total number of respondents does not total 193 professional nurses because some respondents provided answers to more than one of the choices.

The duration of experience in their areas of expertise showed that 36 (18.7%) respondents had one to five years of experience, 55 (28.5%) had six to 10 years of experience, 46 (23.8%) had 11 to 15 years of experience, and 25 (13.0%) had 16 to 20 years of experience. Thirty-one (16.06%) failed to indicate the duration of their experiences and their responses were excluded from the data set.

The Technological Caring Instrument (TCI)

The Technological Caring Instrument measures technological caring among practicing professional nurses in various settings. Since technological caring is defined as the technical achievement of caring in critical settings, its recognition as a vital expression of caring needs to be validated by generating appropriate database using reliable and valid instruments. Each statement in the TCI was phrased precisely to reflect the nature of caring based on Ray's (1987) theoretical perspective of caring among critical care nurses. Altogether, the 27 statements in the TCI reflect this concept. Four of the 27 statements refer to technology in nursing, while 23 describe aspects of caring. To facilitate evaluation and analysis of data, all statements in the TCI are expressed in the affirmative. The approach relies on the extent of agreement and disagreement expressed by respondents toward statements in the TCI; that is, the greater the participants' agreement with the statements of the TCI, the greater the degree of technological caring they exhibit.

The TCI is a visual analogue scale with 87-millimeter spaces between end choices of "strongly disagree" and "strongly agree." One of the features of a visual analogue scale (Gift, 1989) is the absence of forced choices which encourage respondents to freely indicate their options. Responses of participants were quantified by measuring the distance from the left-most extreme (strongly disagree) to the intersection of the "X" mark. These distances were entered in the computer and treated as interval scale numbers. When all the information from the retrieved copies of the questionnaire was recorded, various statistical treatments were conducted to determine the degree of technological caring among practicing professional nurses. A measurement of 43.5 millimeters and greater indicated that the respondent agreed with the statement as reflecting technological caring, while a mark measuring less than 43.5 signified that the respondent disagreed with the statement as reflecting technological caring. This description is also true for each participant's perception of technological care in clinical nursing, i.e., a total mean score of 43.5 millimeters and greater signified that the respondent is technologically caring, whereas a mean score of less than 43.5 millimeters indicated that the respondent is not technologically caring.

Results

Of the 170 respondents, 74 (38.3%) had Associate degrees in nursing, while only 59 (30.6 %) had baccalaureate degrees in nursing. Although the need for further studies cannot be established solely from this study, the evidence that 11.3% (20 participants) of the re-

spondents either possessed a master's degree in nursing, or were in the process of attaining it suggests that graduate studies may be desirable if not altogether necessary.

To obtain a greater representation of various critical care settings, multiple choices of intensive care areas were presented in the demographic data sheet. This process successfully appropriated critical care settings from respective practicing professional nurses. However, the disadvantage was that, despite the instructions, some participants indicated more than one area of expertise, although none of the questionnaires included in the data set had responses that indicated both critical and noncritical-care settings.

Regarding duration of experience in their respective areas of expertise, the data showed that the majority of the respondents had six to 10 years of experience. Of greater significance is the finding that more than one-tenth of the professional nurses had been practicing professional nursing for at least 16 years, implying the existence of experienced practitioners in various specialized critical care areas.

Various methods were used to determine validity and reliability of the TCI. Marilyn Ray (RN, Ph.D.), the proponent of the concept of "technological caring" herself evaluated and ascertained the face validity (meaning and content accuracy) of the TCI. Significant and substantive changes to the structuring of the statements were made prior to the final instrument form. Expert validity was determined by practicing critical care nurses from another institution out of state who advised that all of the items were relevant. It was also ascertained that it took 10 minutes to complete the instrument. To estimate construct validity, factor analysis and independent sample t-test were performed.

Using the Statistical Program for the Social Sciences (SPSS), the researcher first performed factor analysis, using principal factoring with iteration followed by orthogonal (Varimax) rotation which determines the number of factors to

be extracted from the original correlation matrix, which lessens investigator bias. The results indicated that the TCI was able to cluster the statements under factors that reflect technological caring. Four statements reflected technological competency while 23 statements indicated the traditional concept of caring in nursing.

Secondly, an independent sample t-test was conducted. This test indicated that all items of the TCI, except item number 3 ("burn-out comes when one is overwhelmed by the equipment"), were not statistically significant at the alpha 0.05 level of significance. However, the ANOVA test indicated statistically significant differences in technological caring with variations between factors ($F=97.0199, p=0.0000$); educational attainment showed the biggest difference among the other variables ($F=4.953, p=0.028$)

Using Cronbach's alpha, the researcher obtained an internal consistency coefficient of 0.812 for the total instrument. At the same time, inter-item correlation for the total instrument ranged from 0.77 to 0.92. Using the split-half coefficient, the correlation between the two halves of the instrument was 0.46.

The analysis of the scale for reliability followed the following steps: (a) determination of sample size and the method of handling missing values, (b) retention of items based on predetermined criteria, (c) analysis of unclassified items, and (d) final decision to retain or delete each dimension. Missing data presented special problems in constructing composite scores for reliability analysis. Because no single procedure is available that best handles this problem, three methods were developed and tested. Comparisons on the effect of each scale dimension on the alpha coefficients were made among these methods to assess if the results were method-dependent. In each case, the effect of the sample size was also considered. The method of handling the missing values included deleting all cases with missing values. All had minimal effect on the al-

pha coefficient. A sample size of 193 without substitution of item means was chosen for the final analysis. It represented a compromise between the decrease in sample size and an acceptable number of missing values. Only 39 participants in the sample had missing values.

Summary and Discussion of Results

As defined early in this paper, the purpose of this study was to determine the technological caring of professional nurses from a Southeast county of Florida. Reclassification of areas of expertise into critical care and noncritical care settings resulted in a total of 79 respondents comprising the group who practice in critical care settings, while 60 respondents comprised the group who practice in noncritical care areas. Fifty-five respondents (28.5%) had nursing practice experience from six to 10 years. Five of the 27 statements with the lowest mean scores reflected technology in nursing, while five of the statements reflecting aspects of caring had the highest mean scores. The overall mean score was 58.889 (N=193) reflecting technological caring.

Of the 27 statements that comprise the TCI, items number 20, 21, and 22 obtained the top three highest mean scores. The statements with the three lowest scores were numbers 6, 27, and 26 respectively. It is interesting to note that the top three ranking statements reflected caring behaviors that illustrate mutual support between nurse and patient, patient and family, and the nurse-patient-family relationship. On the other hand, the three lowest ranking statements reflected the patient's perception of technology dependency as economically burdensome and caring for patients as synonymous with technological competency. They also reflected the nurse's perception of technological caring as resulting in "burn-out" because of the predominance of machine-dependent care.

The inclusion in the sample of respondents who have either graduate education in

nursing or have earned credits towards a master's degree in nursing significantly increased the total number of respondents with baccalaureate education in nursing. It is also evident that retention of experienced professional nurses is not a problem among the hospitals surveyed as shown by majority of the participants (28.5%) possessing six to 10 years of experience.

Larson (1984) and Mayer (1986) maintain that of the behaviors that reflect caring, technological competence was found to be the ultimate illustration of a caring professional nurse. Similarly, Neighbors and Eldred (1993) declare that current expressions of professional nursing behaviors require the performance of complex procedures and skills if the practice is to satisfy quality patient care requisites. In this case, the ultimate evaluator of the quality of patient care is the patient himself/herself. Yet, this study also reveals that professional nurses overwhelmingly agreed that supportive-expressive functions, such as establishing rapport and communicating with the patient and family, constitute caring in nursing. Conversely, many professional nurses did not agree that technological competence represents the ultimate expression of caring.

Morse et al. (1990) have highlighted the divergent perspectives of caring held by patients and professional nurses. The ambivalence and tension that underlie technology and supportive-expressive caring pose a challenge in the critical care unit. On the one hand, the situation within this care-intensive environment demands that both patient and professional nurse become dependent on technology and on the competent utilization of technology by the nurse. From the patient's perspective, the ultimate caring behavior exhibited by the nurse is one that demonstrates proficiency in the utilization of technology to save his or her life. On the other hand, the TCI results confirmed that nurses continue to attach a higher value to supportive-expressive behaviors. The same results strongly indicated the desire of nurses to

find meaning in the combination of technology and touch. Such a response suggests the nurses' own ambivalent feelings about the paradoxical relationship between technology and caring.

Zwolski (1989) asserts that technology is responsible for the current fragmentation of hospitals into specialized units and subsystems. The demand for intensive technological caring which dominates the ICU is not as high in the stepdown unit while in noncritical care situations primarily transpersonal caring dominates. Such compartmentalized caring is a dynamic phenomenon and is defined by the intensity and nature of the situation in which it transpires. The fact that most nurses did not equate technology with caring in the TCI demonstrates that they did not rank it in the same way as supportive-expressive caring. This could partly be attributed to the uniqueness of technological caring since it allows no comparison with any other caring denominator and is therefore precedent setting.

Recognizing that the expression of caring through technology is as valuable as the expression of caring through transpersonal activities will serve to liberate professional nurses from feelings of uselessness, ambivalence, and frustration when encountering the unique demands of technology-dominated caring. The results of the TCI are intended to clarify this situation.

Implications for Research

As has been observed, technological competency in nursing is considered an expression of caring in nursing (Locsin, 1995). Demonstrating this competency, however, takes many forms, so much so that its concrete manifestations in the delivery of care are sought after by both patients and health care personnel. While many patients, professional nurses, and other health care personnel continue to regard caring as simply the physical presence with patients, current societal dependency on health care technology, on the other hand, calls for a

refocusing of this simplistic definition. The present situation requires that besides being with the patient, professional nurses are expected to be technologically aware and competent with machines and other medical equipment. As a professional, the nurse is expected to deliver the very best, technologically-competent care expected by the patient and family. Unfortunately, since the slightest evidence of incompetence reflects an uncaring nature, practicing professional nurses frequently find themselves under pressure. Consequently, practicing professional nurses often experience burn-out arising from technologically demanding practice settings. Needless to mention, the importance of technical achievement of caring in critical care settings (Ray, 1987) cannot be overstressed.

As mentioned earlier, the results of the study indicate that technological competence is recognized by professional nurses who practice in various settings. Regardless of the practice arena, critical or noncritical, technological caring is considered a feature of nursing practice. Of utmost significance is the finding that the participants of the study were technologically caring as evidenced by the total mean score of 58.815. The findings of this study support the use of TCI as an instrument worthy of further investigation. Other than the TCI, no other instrument to date has yet been developed that will measure technological caring in nursing. Although the TCI has high reliability, it is important to further determine its reliability estimates whenever the instrument is used for different samples. Additional testing of this instrument will help determine its ability to generate data that will clarify technological competency as an expression of caring in nursing. Moreover, enhancing multiple sampling distribution which considers these variables may further contribute to the establishment of the TCI as a valid instrument for measuring technological caring in nursing. Nevertheless, two associated findings have been established in this investigation. First is the support for the

TCI as a set of statements that reflect technological caring, and second the statistical support for the validity and reliability of the TCI.

Although the present study consisted of a fairly homogeneous group of professional nurses from a single county, variables like educational attainment, area of expertise, and years of experience provided an excellent opportunity to further investigate expressions of technological caring in nursing. Augmenting the questionnaire-by-mail response rate to 40% or 50% can increase the total number of respondents. Strategies to increase this retrieval rate, such as a follow-up letter to each participant or a follow-up memorandum to the respective contact person of the selected institutions, can be instituted. Further support for construct validity should be obtained through convergent and discriminate validity testing, and correlation across measures should also be assessed. Similarly, a comparative profile of the experiences of professional nurses in different areas of practice like hospice care versus those who work in intensive care, different participant groups, such as students of professional nursing, and practicing professional nurses from other countries or cultures can yield valuable data. Such researches are fundamental to the development and testing of an instrument that will generate data to support technological competency as caring in nursing.

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Item Scale Analysis Data (TCI)			
Item	*Variable*	*Mean*	*SD*
1.	When nurse's needs are met from mastering the machinery, the nurse can meet others' needs.	55.132	24.21
2.	Burn-out comes when one is overwhelmed with the equipment.	24.67	25.25
3.	It all comes down to knowing the patient and being confident in one's own knowledge. We think of more than the physical.	66.79	14.47
4.	Technical achievement is one of the meanings of being a nurse.	49.797	25.86
5.	Caring is technology. It means that we have to interpret the meaning of the monitors, the numbers, the tubes, and the lines and act on that interpretation with right judgment.	41.487	29.77
6.	Caring is technical competence.	30.83	27.13
7.	When a nurse is comfortable with the technology, he/she can concentrate on the patient and family.	58.84	21.25
8.	It all has to mean something--the combination of technology and touch.	63.074	20.04
9.	Caring is touch, holding hands, "pat" or touch a shoulder; just touching a person.	56.905	23.50
10.	Caring is attachment--emotional investment.	48.096	27.42
11.	Caring is bonding. Look beyond the technical and pick up the inner feelings in contact with you. As I know a patient, he or she knows me.	54.905	25.20
12.	Caring is meeting the inner person's fear.	60.13	21.14
13.	Caring is making the person feel safe.	67.857	12.98
N=193; Overall mean=58.889; Standard Error=0.659; Standard Deviation=9.154			

Item Scale Analysis Data (TCI), *continued*			
Item	*Variable*	*Mean*	*SD*
14.	Caring is compassion--being there, physically and emotionally.	70.09	11.24
15.	You have to have a sense of humor--cut loose.	65.399	18.07
16.	Caring is talking to the person, and his/her family.	69.948	13.22
17.	Caring is comfort--relieving pain. Persons see you as having the power to relieve pain.	64.581	17.44
18.	Caring is keeping the family informed and updated.	71.010	11.34
19.	Caring is congeniality with other nurses and physicians.	67.247	16.50
20.	Caring is support from each other.	71.089	13.01
21.	Caring is establishing rapport so you can talk to a patient or let a family member talk.	72.449	11.72
22.	Caring is understanding how the patient feels.	71.573	13.19
23.	Caring is trust among patients, families, nurses, and physicians.	70.620	14.22
24.	Caring is making the right decisions.	60.543	23.92
25.	Caring is valuing--aggressive technical care or permission to die a peaceful death.	68.661	15.68
26.	Caring is choice for patients and families.	66.574	18.38
27.	Caring is economics--death so patients are off expense account.	19.881	24.61
N=193; Overall mean=58.889; Standard Error=0.659; Standard Deviation=9.154			

DIET, CHOLESTEROL AND HEART DISEASE: SOCIO-POLITICAL RAMIFICATIONS OF A MISGUIDED HYPOTHESIS

Glen D. Lawrence

Abstract

The belief that cholesterol causes heart disease has gained universal acceptance even among health care professionals. Yet studies have shown that evidence supporting this belief is limited and no scientific consensus has been reached in the research community. Moreover, this relationship has been played up far beyond the proportions it deserves although the studies on which this claim is based were either unreliable or unsatisfactory and the hypothesis that resulted from them was flawed. Arguing that this belief is based on a universal misperception, this paper challenges one of the most influential notions about the relationship between dietary cholesterol and coronary heart disease. It points out that underlying the tremendous popularity of the so-called cholesterol hypothesis were largely socio-political factors, foremost of which were the coming of age of television in America in the 1950s and the massive advertising campaigns by the processed foods industry. Through television, the influential processed foods industry brainwashed the public into believing that their products made mostly from vegetable oils and hydrogenated vegetable oils were cholesterol-free and therefore healthy. This paper argues that far more than the scientific findings, the complicitous relationship between the media and the advertisers, inspired mainly by the common pursuit of profit, was responsible for popularizing the cholesterol hypothesis.

The idea that dietary cholesterol is bad for us continues to be a universal misperception, at least among a large segment of the population, including health care professionals, even though there is limited evidence to substantiate it and counterevidence to disprove it. Although the relationship between dietary fats and levels of cholesterol in our blood has been investigated *ad nauseam* for the past 50 years, there is still no scientific consensus in the research community regarding this relationship. The fact that people with high blood cholesterol are at greater risk of suffering coronary heart disease (CHD) than people with low cholesterol has been

played up far beyond the proportions it deserves. The so-called cholesterol hypothesis has been dictating the dietary recommendations going out to the health conscious public in North America and Northern Europe for more than half a century, and perhaps is doing as much harm as good. It would be unfortunate if developing countries, such as the Philippines, try to adopt these ill-founded recommendations, especially with regard to dietary edible oils.

Some description of terms used in this treatise may be helpful in following the discussion. The reader is referred to Figure 1, Table 1, and the notes at the end of this article, for a description of lipids[a] and other terms. A brief history of the research on dietary fats, cholesterol,[b] and heart disease is necessary in order to begin to understand where the current recommendations originated. Although the chemical structure of cholesterol was not worked out until the 1930s, its chemical composition and biochemical properties were known in the 19th century. It was known that "hardening of the arteries" was due to a buildup of fatty substances, cholesterol, and calcium in the intima (inner walls) of the arteries. Arteriosclerosis[c] is the medical term used for hardening of the arteries, and atherosclerosis refers to these deposits in the coronary arteries. Plaque buildup in the arteries impairs blood flow and the resulting roughness of the lumen predisposes these arteries to thrombosis (blood clots). Because the atherosclerotic plaques contain cholesterol and other lipids, it was natural to postulate that the more cholesterol we eat, the more there will be coursing through our bloodstream. The physiology of our bodies, however, turns out to be not so simplistic as this model would suggest.

An Epidemic of Heart Disease

Myocardial infarction (a blood clot in the coronary arteries) was rarely seen in the early 1900s, perhaps due to oversight. By 1950, coronary heart disease had become the leading cause of death in the

USA, with myocardial infarction a major contributor, accounting for more than 500,000 deaths per year in 1960.[1] Many articles in the popular press as well as some in the scientific literature were proclaiming that nearly one in every two people in the US would die from coronary heart disease[d] (CHD).

During the Korean War (1950-53), US Army surgeons were dispatched to the combat zone to gather information (primarily on wound ballistics) from autopsies of soldiers killed in battle. An unanticipated outcome of their assignment was that they noticed signs of atherosclerosis forming in the arteries of 77% of these young, vigorous men who had succumbed to the ravages of war.[2] Because of the rapid rise in heart disease in the previous 20 years, this observation was alarming. However, the same report indicated 65% of a similarly aged Japanese population showed signs of atherosclerosis, although generally not as severe as in the Americans.

Researchers from several countries studied the relationship of dietary fats to serum cholesterol in humans in the 1950s and early 1960s.[3,4,5,6] In order to have a reasonable cohort of humans to study, and to be able to limit their food intake to only the foods prescribed by the researchers, these studies were done on institutionalized men (in prisons and mental institutions). Diets were carefully prepared to contain specific amounts of cholesterol and fats (saturated, monounsaturated or polyunsaturated), with other nutrients kept at constant levels to avoid interfering factors. Although the dietary manipulations used in those studies would be unrealistic for an at-large (unconfined) population, the results from experiments conducted on institutionalized men were overwhelming. The lowest levels for serum cholesterol were achieved when diets consisted of mostly polyunsaturated fatty acids,[e] while the highest levels for serum cholesterol were found with predominantly saturated fatty acids in the diet. The results seemed very straight forward and the conclusion drawn from all of

these studies was that saturated fats will increase blood cholesterol, while polyunsaturated oils will lower blood cholesterol, and monounsaturated fatty acids are intermediate

The reader should realize that such studies utilized a captive group of subjects and fed them diets that contained predominantly one category of dietary fats for a period of several weeks before switching to a diet that had predominantly another category of dietary fats (*i.e.*, saturated, monounsaturated or polyunsaturated) and see what influence these diets had on blood cholesterol levels. These studies performed in the 1950s became the hallmark for the relationship between dietary fats and serum cholesterol. Studies where levels of dietary cholesterol were altered and the fats remained constant showed less consistent changes in blood levels of cholesterol. The results from 128 different studies with 2,750 patients over 30 years have been reviewed.[7] The data indicate that a reduction in dietary cholesterol intake from 450 to 300 mg/day will, on average, lower plasma cholesterol by 3.7 mg/dL (or less than 2% for the average American). The body compensates for changes in dietary cholesterol intake by regulating synthesis of new cholesterol and regulating the amount of cholesterol metabolites excreted.[8]

Cholesterol Is Implicated

A working hypothesis developed implicating serum cholesterol as a major contributor to atherosclerosis, which was believed to clog arteries and when severe enough, cause heart attack, stroke and other cardiovascular disease. It seemed logical to postulate that LDL[f](low density lipoprotein) carrying cholesterol through the arteries was getting deposited along the way, much like pebbles strewn from trucks carrying gravel along a bumpy highway. LDL is the most abundant lipoprotein transporter in the blood most of the time (chylomicra rise and fall rapidly after a meal), and it is nearly 50% cholesterol by weight, so it is not surprising that it is commonly referred to

as "bad" cholesterol. HDL contains only 25% to 30% cholesterol by weight, but is less abundant than LDL. There seems to be a good correlation between high levels of LDL and/or low levels of HDL and increased risk to CHD. Treatments that increase the ratio of HDL:LDL are considered protective, while those that decrease this ratio are detrimental.

In 1948, the first large scale heart disease study was launched that involved an entire town, Framingham, Massachusetts. This long term study used a sample of 5,197 adults and has spawned the most comprehensive investigation of the health of any population. Reports continue to emerge from this study, analyzing not only heart disease, but many other diseases, since the records for each individual's health usually included eating, drinking, and smoking habits of that individual as well as other health related statistics. It was this study that showed the link between serum (blood from which cells and clotting factors have been removed) cholesterol levels and coronary heart disease. At the 20 year point, it was found that 10% of middle-aged men with low serum cholesterol (<200 mg/dL) had some occurrence of heart disease; 12% of those with average cholesterol levels (200 to 239 mg/dL) had heart disease, while 18% of those with high cholesterol (>239 mg/dL) had signs of heart disease.[9] However, this relationship of serum cholesterol level to heart disease only held true for middle-aged males, but not for females; nor was this correlation true for the elderly, which is the group most likely to succumb to heart disease.

It had been found that the amount of atherosclerosis in all populations, regardless of race or national origin, increased with age and, although the amount of plaque varied somewhat from one nation or race to another, there was no direct correlation between the amount of plaque buildup and the incidence of heart disease when comparing countries.[10] There also was not a consistent correlation between levels of serum cholesterol and

atherosclerotic heart disease in the general population. Michael DeBakey, one of the early pioneers in heart surgery in America, and colleagues[11] published data showing that 46% of 1,700 patients who underwent surgery for atherosclerotic heart disease had serum cholesterol levels below 250 mg/dL (what is generally considered to be low risk for heart disease), 34% had cholesterol between 250 and 300 mg/dL, while only 20% had serum cholesterol levels greater than 300 mg/dL (considered very high risk for heart disease). These statistics can be misleading, since the majority of people in the population have cholesterol below 250 mg/dL, while a relatively small number of people in the population have the highest levels. However, these results show that people with low to average levels of cholesterol are also prone to atherosclerotic disease that requires surgery.

America Wages War on Cholesterol

With evidence that polyunsaturated oils in the diet could lower blood cholesterol and the working hypothesis being that high blood cholesterol leads to clogged arteries (although it lacked proof), the American Heart Association (AHA) started a campaign in 1956 promoting their Prudent Diet: recommending less butter, lard and animal fat, substituting the cholesterol-free and serum cholesterol-lowering vegetable oils. The American vegetable oil industry and its affiliated organizations were naturally quite pleased with the recommendations. The American Medical Association was hesitant to make such strong statements about vegetable oils being part of a "Prudent Diet," but after massive mailings to doctors across America of promotional materials from the AHA,[12] most physicians began transmitting the AHA's unsubstantiated information to their patients.

Television was coming of age in America in the 1950s, and the TV industry was driven by advertising. The processed foods industry has always been a major advertiser and a major force in shaping the eating habits of the American public. Since their products are mostly made from vegetable oils and hydrogenated vegetable oils, they could promote them as being healthy for the consumer's heart. Placing a big sign on the packaging that their products were cholesterol-free was a big selling point for a public that was being brainwashed into believing that dietary cholesterol was killing them. Yet, dietary cholesterol has a widely variable effect on levels of blood cholesterol, depending on individual variation, other lipids in the diet, and other factors, although the general effect is quite small as indicated above.[7]

The momentum built rapidly with large injections of funds from the food industry, but also when physicians and the entire health care community saw that the public seemed receptive to the new dietary guidelines. There was also opportunity to get everyone involved when physicians could collect blood from patients and have the serum cholesterol measured quite easily by the medical laboratory (for a fee). The patients felt involved as well since they could go home and try the recommended dietary modifications, then return to the doctors' office, have another blood sample taken, and be told their blood cholesterol reading. An actual measure of success is difficult to assess for the general population and was probably more efficacious for some individuals than for others.

The actual numbers that most people got were not very reliable. A survey of clinical labs in the early 1980s found an average error of 6.2%, while one out of five labs had an error rate of 9% or more. This survey did not include the thousands of small labs and doctors' offices that were doing cholesterol analyses. In one case, lab equipment was found to be "accidentally" inflating all readings by approximately 6%. Ultimately, a person with average cholesterol level of 220 mg/dL could expect a reading anywhere from a very low 187 mg/dL all the way to 267 mg/dL, which would prompt a physician to encourage aggressive treatment for high choles-

terol.[13]

Testing the Cholesterol Hypothesis

The early findings provided justification to study factors contributing to atherosclerosis and heart disease. By this time analytical techniques were well developed to measure the quantity of cholesterol in blood, and it was quite easy to draw a blood sample from someone to do this analysis. There were numerous studies of the relationship of diet to blood cholesterol taking place at about that time (and there continues to be to this day), so it seemed that dietary manipulations should be effective in lowering blood cholesterol. The amount of money devoted to the measurement of cholesterol in blood in the latter half of the 20th century is staggering.

In the early 1970s, the National Institutes of Health (NIH) in the US, through the National Heart, Lung and Blood Institute (NHLBI), initiated two large scale studies to begin testing the hypothesis that serum cholesterol could be lowered, and should consequently lower the incidence of heart disease. One was the Multiple Risk Factor Intervention Trial (MRFIT) which selected 12,866 healthy, middle-aged men from a total of 361,662 candidates that were screened for the study. Those selected had above average serum cholesterol levels, 2/3 smoked cigarettes, 2/3 had high blood pressure, and 60% were obese. Half were randomly placed in a special intervention (SI) group that would be closely monitored by the researchers and given special sessions to learn how to change their diets to lower cholesterol, were strongly encouraged to quit smoking and were given aggressive treatment for high blood pressure, if needed. The other half constituted a control group and was referred to the usual care (UC) of their personal physicians, who merely received the results of the initial screening.

The SI group decreased their cholesterol, saturated fat, and total calorie intake by 42%, 28%, and 21%, respectively.[14] These drastic changes

in their eating habits resulted in a modest 5.0% decrease in serum cholesterol for the group. The eating habits of the control group were not monitored, but their serum cholesterol decreased by 3.1% by the end of six years. In the SI group, nearly half quit smoking completely by the end of six years, while 29% of the usual care group quit on their own. Although both groups had similar high blood pressure, 24% more were treated with drugs for high blood pressure in the SI group. The number of deaths from heart disease after 6.9 years of observation was: SI group, 110 (1.7%); and UC group, 117 (1.8%). The total number of deaths from all causes was: SI, 266 (4.1%); UC 262 (4.1%). Clearly this large scale study involving 28 medical centers across the country, 250 researchers, and funded by $115 million of public money was a major setback for the interventionists. The MRFIT group published later results from 10.5 years follow-up[15] which showed 202 SI group deaths and 226 UC deaths from coronary heart disease, and a total of 496 deaths in the SI group, compared to 537 deaths in the UC group. Perhaps some of the special intervention was paying off over longer periods of time, but clearly serum cholesterol was not a deciding factor.

The second large scale study launched at about the same time as MRFIT was the Lipid Research Clinics Coronary Primary Prevention Trial. The aim of this study was to first see what effect dietary changes would have on serum cholesterol and then take a more aggressive approach to lowering serum cholesterol using a drug. Subjects were divided into the drug treatment group and placebo group. The drug was cholestyramine, a nondigestible fiber that binds bile acids,[a] causing their excretion in the feces. Bile acids are essential for proper digestion of dietary fats, so loss of these through excretion requires the body to metabolize more cholesterol to replace them. The drug caused a variety of side effects, such as bloating, constipation, heartburn and nausea, especially in the first year.

Initially, each group altered their diets and a modest decrease in blood cholesterol was observed. Later the drug or placebo was administered. Cholestyramine treatment resulted in a 13.4% decrease in total serum cholesterol, and a 20.3% decrease in LDL cholesterol. These decreases in cholesterol were 8.5% and 12.6% greater than the respective decreases in the placebo group. Of 1900 subjects in each group, there were 38 deaths from coronary heart disease in the placebo group and only 30 deaths from CHD in the drug treated group. However, there were 33 non-CHD deaths in the placebo group and 38 non-CHD deaths in the drug treated group. It was noted that there were nearly three times as many traumatic deaths (accident, suicide, homicide) in the drug treated group (11) compared to the placebo group (4), which was significant. The researchers were at a loss to explain this unexpected result.

Although the differences in heart disease risk (death) were not considered significant by normal statistical analysis, the researchers invoked another statistical test that gave a significant difference at the 5% confidence level and claimed[16]: "...a decrement of 22.3 mg/dL (10.4%) in LDL-C levels is associated with a 16% to 19% reduction in CHD risk (internal consistency)." LDL-C stands for LDL-cholesterol, and "internal consistency" in parentheses was to denote the special statistical treatment of this data. At a seminar given by one of the physicians administering this study, the concluding remarks stressed that for every 1% decrease in serum cholesterol they found a 1.5% decrease in risk of death from CHD. The fact that there were no significant differences in overall death rate in the two groups was ignored in the concluding remarks. Even if one is willing to accept the statistical difference in death rate from CHD as a result of lowering plasma cholesterol, death rates from all causes were not significantly different. Lowering plasma cholesterol in people at high risk of heart disease did not

increase life expectancy. It is interesting to note that one early study that used polyunsaturated oils in the diet to lower blood cholesterol showed an 80% increase in deaths from cancer as a result of that dietary manipulation.[17]

Misguided Dietary Recommendations Go Awry

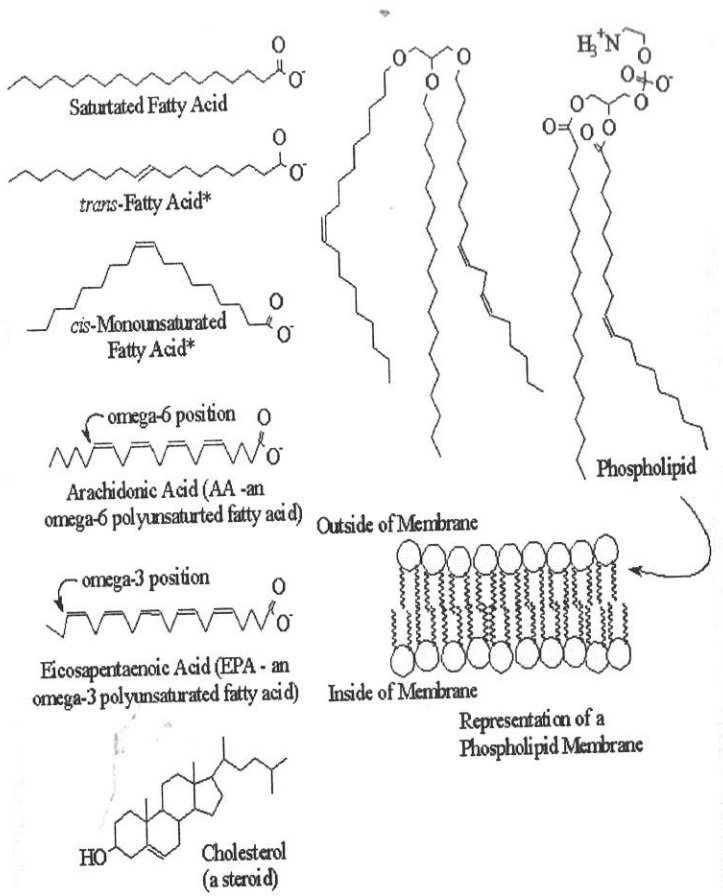
It appears from these large scale studies that dietary recommendations that focus only on attempting to lower cholesterol are pointless and the nutritional advice should focus on an individual's particular dietary needs. It has become clear that hydrogenated vegetable oil (cholesterol-free margarine) that was being recommended as a substitute for cholesterol-laden butter, actually increases blood cholesterol levels as much, if not more than, butter.[18] There are *trans*-fatty acids in hydrogenated vegetable oil that arise from the chemical hydrogenation process. *Trans*-fatty acids are found at low levels in dairy products and meat of ruminants produced by bacteria in the rumen), but the amount in hydrogenated oils may be as high as 35% or more. *Trans*-fatty acids have been shown to lower HDL cholesterol while raising LDL cholesterol, which is most unfavorable in terms of risk of CHD.[19] Recently levels of trans-fatty acids were found to be higher in adipose (fat) tissue of women with breast cancer than in age-matched control (cancer-free) women.[20] *Trans*-fatty acids also seem to interfere with essential fatty acid metabolism and could impair growth of newborn babies.[21]

Clearly there seem to be more problems with the synthetic hydrogenated products than with natural foods, especially if one compares partially hydrogenated vegetable oils (margarine or shortening) with palm or coconut oils. The tropical oils, coconut oil and palm oil, seem to have a relatively unblemished record, provided they are not consumed in such excess to cause obesity (which has its own complications). The Philippines has the highest *per capita* consumption of coconut oil in the world and

one of the lowest CHD death rates.[22] It is ironic that a businessman from the heart of the American corn belt spent millions of dollars placing full page ads in major newspapers across America in the early 1980s, calling for a boycott of Nabisco brand cookies and crackers because they contained coconut oil—which is loaded with saturated fatty acids that supposedly raise blood cholesterol. The ads were effective, forcing Nabisco to reformulate their snacks with American made hydrogenated vegetable fats (which contain high amounts of *trans*-fatty acids).

Vegetable oils contain a large amount of omega-6 polyunsaturated fatty acids. "Omega-6" refers to the position of double bonds, or sites of unsaturation in the fatty acid molecules (see Figure 1). Fish oils, by comparison, contain mostly omega-3 polyunsaturated fatty acids. Both types of polyunsaturated fatty acids will tend to lower blood cholesterol, albeit modestly, but they can have very different effects on many biochemical and physiological activities in the body. Some polyunsaturated fatty acids are classified as essential fatty acids and are required in the diet just as vitamins are. However, just because a nutrient is essential in the diet, it does not mean that more is necessarily better. For example, the fat soluble vitamins (A, D, E and K) can be quite toxic if taken in large excess. Polar bears have extremely high levels of vitamin A in the liver (from consuming large quantities of fish liver). There have been documented reports of people dying of vitamin A toxicity from eating polar bear liver.[23]

The essential fatty acids are metabolized to bioactive eicosanoids, which are hormone-like substances that can have very powerful effects in the tissues in which they are formed. These eicosanoids include the prostaglandins, thromboxanes and leukotrienes. A discussion of their many and varied physiological actions is beyond the scope of this paper. Some of their more notorious actions include initiation of blood clots, inflammation resulting from allergies or



*Most naturally occurring unsaturated fatty acids are *cis*-fatty acids. The chemical process of hydrogenation causes *trans*-fatty acids to be formed.

* "*trans*" means that the chains left and right of a double bond point to opposite directions whereas in "*cis*" configuration, they are located on the same side.

Figure 1. Stick Model Chemical Structures of Lipids

injuries, and bronchoconstriction during an asthmatic attack. Eicosanoids also play important roles in the immune system. The omega-3 fatty acids from fish oils tend to be much weaker in their actions than the omega-6 fatty acids from vegetable oils (see Table 2). The high levels of omega-6

fatty acids being consumed in the industrialized nations are being blamed for a wide range of diseases, including diabetes[24]; inflammatory diseases, such as rheumatoid arthritis, ulcerative colitis and psoriasis[25]; and asthma.[26] Cancer studies in lab animals have shown that vegetable oils promote tumors to a greater degree than fish oils or saturated fats.[27] Dietary vegetable oils augmented adjuvant-induced arthritis in rats[28] but suppressed chemically-induced seizures in mice relative to saturated fats.[29] This latter result is likely due to the fact that PGD_2 and PGE_2, formed from omega-6 fatty acids are sedatives in the brain.[30]

Time to Put the Cholesterol Hypothesis to Rest

It has not been possible to prolong life by lowering blood cholesterol. An individual's blood cholesterol level is dictated more by genetics than by diet, although diet clearly influences blood cholesterol levels. The early simplistic model for cardiovascular disease (*i.e.*, atherosclerotic cholesterol buildup in arteries to the point of completely occluding the artery) is now recognized as naive. Unfortunately, this naive picture of cardiovascular disease persists, and even cardiologists tend to be skeptical of theories of heart disease that do not invoke buildup of atherosclerotic plaques.[31] Although people with high blood cholesterol are more likely to suffer CHD, people with low blood cholesterol are not safe from getting CHD. Today it is recognized that there are many factors that contribute to atherosclerosis and heart disease. Theories of atherogenesis[c] have changed dramatically in the past decade. There is mounting evidence that bacterial (*Chlamydia* spp.) infections can lead to heart disease by inducing an immune/inflammatory response in coronary tissue.[32]

There is good evidence that lipid peroxidation[g] of polyunsaturated lipids in the LDL contributes to atherogenesis. This means that polyunsaturated oils in the diet would promote this lipid peroxidation by

Table 1: Examples of Edible Fats that Contain Predominantly Saturated, Monounsaturated or Polyunsaturated Fatty Acids

Predominant Composition	Edible Fat	Approximate Composition*		
		S (%)	M (%)	P (%)
Saturated Fatty Acids	Coconut oil	85	8	2
	Palm oil	45	42	8
	Butter	52	23	2
	Beef fat**	44-52	40-48	2-6
	Pork fat**	32-42	36-46	6-14
	Vegetable shortening***	25-49	37-65	5-20
	Stick margarine***	24-36	34-46	4-7
	Soft tub margarine***	12-27	25-53	3-31
Monounsaturated Fatty Acids	Olive oil	14	70	11
	Canola oil	6	62	31
	Peanut oil	19	48	29
	Rapeseed oil	7	57	32
Polyunsaturated Fatty Acids	Safflower oil	9	12	78
	Sunflower oil	11	20	69
	Corn oil	13	25	62
	Soy oil	15	24	61
	Sesame seed oil	14	36	45

* Approximate composition of fatty acids as percent of total: saturated (S), monounsaturated (M) and polyunsaturated (P).

** The fatty acid composition of pork fat and beef fat depends on what the animals were fed. Cattle eating grass on the range will have higher saturated content, while those fed corn and other grains in a feed lot will have higher unsaturated content.

*** Shortening and margarine are made by hydrogenation of vegetable oils. The fatty acid composition will depend on what oils are used and the extent of hydrogenation that takes place. These have a high content of *trans*-monounsaturated fatty acids. These *trans*-fatty acids behave more like saturated fatty acids in the body in terms of their influence on levels of cholesterol in the blood, but may have additional undesirable effects on health (see text).

Table 2: Known Physiological Effects of Omega-6 vs Omega-3 Polyunsaturated Fatty Acids		
	Polyunsaturated Fatty Acid Category	
	Omega-6	Omega-3
Dietary Sources	Vegetable Oils	Fish Oils
Fatty acids in each category	Linoleic acid Arachidonic acid	Linolenic acid Eicosapentaenoic acid (EPA) Docosahexaenoic acid (DHA)
Eicosanoid precursor	Arachidonic acid	Eicosapentaenoic acid
Thrombotic factor	TXA_2-potent Platelet aggregation Vasoconstriction	TXA_3-weak Platelet aggregation Vasoconstriction
Net effect on blood clotting	Increases blood clotting	Decreases blood clotting
Inflammation factors	LTB_4 strong chemotactant PGE_2 increased vasopermeability	LTB_5 weak chemotactant PGE_3 decreased vasopermeability
Net effect on inflammation	Increases inflammation	Decreases inflammation
Tumor promotion*	Increased tumor production	Decreased tumor production

*Tumor promotion (growth of cancerous tumors) in lab animals has been shown to increase with vegetable oils relative to saturated fats and fish oils in the diet. The eicosanoids involved in this effect are not well understood at this time and may involve several different effects on tumor growth and/or immune surveillance.

making more polyunsaturated fatty acids available. Antioxidants, such as vitamins E and C and beta-carotene seem to protect against lipid peroxidation and the resulting atherogenesis.[33] In addition, *trans*-fatty acids that are abundant in hydrogenated vegetable oils (margarine and shortening) have been found to raise blood cholesterol levels, especially LDL cholesterol, while lowering levels of the protective HDL. It is beginning to seem that the typical American diet, containing an abundance of the combination of polyunsaturated oils, margarine and saturated animal fats are providing the ideal conditions for atherogenesis.

The dietary recommendations that continue to be made to lower blood cholesterol seem to be doing more harm than good, if one considers the consequences of *trans*-fatty acids in margarine (a substitute for butter) and the eicosanoids produced from omega-6 polyunsaturated fatty acids in vegetable oils. The popular press is beginning to change its recommendations on what constitutes a healthy diet. Now people are beginning to admit that foods that are loaded with cholesterol, such as eggs, are really not so bad for us, although they are only willing to go halfway on margarine, claiming stick margarine is as bad as butter, but tub margarine is a little better.[34] The evidence points against all polyunsaturated vegetable oil products, including the partially hydrogenated forms.

Conclusions

The stress from worry is just another risk factor for heart disease. Any foods should be eaten in moderation, and a well balanced diet in conjunction with adequate exercise and avoidance of dangerous pollutants should be the objective. In the end, all this fuss about cholesterol and heart disease boils down to only one source—economics!

Notes

[a] Lipids refers to biochemical substances that are not soluble in water. These include fatty acids (see note e), triglycerides (fats and oils), phospholipids, steroids, eicosanoids, and fat soluble vitamins (A, D, E and K).

[b] Cholesterol is in the category of lipids known as steroids. Cholesterol is only found in animals and is an important component of all cells in the human body. It helps to maintain the fluidity of cell membranes. It gets metabolized to several different steroid hormones (e.g., testosterone, progesterone,

estrogens, cortisone), bile acids (essential for digestion of fats in the intestinal tract) and vitamin D (the sunshine vitamin, because there is a photochemical reaction involving ultraviolet rays of the sun). These metabolic fates of cholesterol result in considerable daily turnover of this lipid in the body. If we do not consume sufficient amounts in our diet, the body synthesizes cholesterol from other nutrients. The normal level of cholesterol in the blood is between about 150 and 280 mg/dL, with an average in many industrialized nations around 220 mg/dL.

[c] Atherosclerosis is the deposition of lipids in the intima (inner lining) of the arteries supplying the heart. These fatty deposits can occur in any arteries (arteriosclerosis is the general term), but the arteries around the heart seem to be more susceptible to this build-up. Atherogenesis is the term used to describe the process of lipid deposition in these arteries.

[d] Coronary heart disease (CHD) is the term the American medical establishment has given to cardiovascular problems. The term seems redundant to me, since coronary refers to the arteries of the heart, but it seems to be the one accepted by American physicians. Other terms used include ischemic heart disease, myocardial infarction, and coronary thrombosis, all referring to blood clots in arteries supplying the heart.

[e] The fatty acids that make up triglycerides (storage fats in adipose [fat] tissue, as well as vegetable oils and animal fats) and phospholipids (polar lipids that make up cell membranes and the surface of lipoproteins) come in three main varieties—saturated, monounsaturated and polyunsaturated. The nature of the fatty acids imparts the physical characteristics of the other molecules they make up. Saturated fatty acids tend to make lipids more solid, while polyunsaturated fatty acids tend to make them more fluid or liquid. Monounsaturated fatty acids are intermediate. Tropical (palm and coconut) oils contain mostly saturated fatty acids, but they tend to be liquid at room temperature because they have shorter hydrocarbon chains.

[f] After we consume a meal, the lipids are transported from the intestinal tract to the cells that store and utilize them via transporters known as lipoproteins—they contain lipids as well as proteins. It will suffice to mention the two most notorious of these lipoproteins: low density lipoprotein (LDL) and high density lipoprotein (HDL). LDL is often called the "bad" form of cholesterol. It contains about 45% cholesterol, with some triglycerides, phospholipids and protein making up the remainder. HDL is considered the "good" form of cholesterol because it contains only about 25% cholesterol, very little triglyceride, and mostly phospholipid and protein, which make it more readily dissolved in the watery matrix of the blood.

[g] Lipid peroxidation is a spontaneous (nonenzymatic) process that involves free radicals and generates potentially carcinogenic substances, and as new evidence indicates, atherogenic substances. Only the polyunsaturated fatty acids are susceptible to this destructive process; saturated fatty acids and monounsaturated fatty acids do not undergo lipid peroxidation.

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