OCHTRINIL'S LEGACY: IRISH WOMEN'S KNOWLEDGE OF MEDICINAL PLANTS

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Abstract. This study addresses one aspect of traditional environmental knowledge in Ireland: remembered and currently practiced folk medicine in the Gaeltacht region of County Kerry. Two aims were to research women's knowledge of medicinal plants there and to understand reasons for continuation or discontinuation of transmission of knowledge of those remedies. Forty-five Irish women collectively described a multi-faceted folk medical tradition. Knowledge of plants used as medicine varied in quantity and depth amongst the people who were interviewed. Forty-seven plant species were described as ingredients of "old-time cures." In the context of this study, knowledge of medicinal plants is linked to environmental and botanical knowledge because the majority of plant ingredients were described as obtained from the wild or from a local garden. Informants viewed their knowledge of medicinal plants as cultural or practical, rather than vital to their survival. This is due to a local improvement in the quality and accessibility of modern scientific medical treatment, also referred to as biomedicine. Change in the economy has influenced the content of participants' knowledge of plant remedies; that knowledge has shifted from traditional medicine sourced from the environment to over-the-counter and plant-based remedies purchased at a store. When the ability to recognize and select plants for medicine from the outdoors becomes nonessential, the corresponding environmental knowledge is endangered.

Keywords: ethnobotany, Ireland, transmission of knowledge, traditional environmental knowledge.

In the current postclassical period of ethnobiology (Clement, 1998), studies of transmission of environmental knowledge have moved to the forefront (Heckler, 2002; Inglis, 1993; Ohmagari and Berkes, 1997; Turner, 2003; Müller-Schwarze, 2006; Lozada et al., 2006). Scholars recognize that studies of the mechanisms of transmission and the reasons for transmission simultaneously serve to preserve traditional environmental knowledge and to create a broader understanding as to why populations discontinue their practices related to the natural environment. This paper investigates women's knowledge of medicinal plants in a rural area of Ireland; it provides baseline ethnobotanical data on traditional medicine there, and offers a qualitative assessment of factors of change that have potentially influenced acquisition and transmission of environmental knowledge over the past three generations.

Traditional medicine and folk healing in Ireland were heavily relied upon in the past, and to some extent are still relied upon today when biomedicine is inaccessible or ineffective. Folk medicine there is associated with a magico-religious cultural tradition that will only briefly be touched upon in this paper. While many of the plant medicines described by informants of this study are not unique to Ireland, the cultural context of traditional healing there is uniquely Irish.

Modern biomedical treatment was made widely available in Ireland later than in other European countries, especially in rural areas (Porter, 2002; Allen and Hatfield, 2004). Like many rural locales, the Dingle Peninsula of

To Orla Breslin, Joe Crain, Eamon O'Connell, Sean Lucey, Cliona White, Aíne Delaney, Eamonn Jordan, Judith Hoad, Elma Henderson, Bernie Goggin, Paula O'Regan, John O' Flaherty, Feidhlim McGowan, Jacqui Higgans, Grace O'Shea, Louise Brosnan, Alfie Hughes, Caitríona Ní Chíobháin, Emma Riordan, and Mairín Benison, Daithí ó Murchú, Jim McNamara, Lorna at the National Museum of Ireland – Country Life, the Irish Countrywomen's Association, and especially to everyone at the Gairdín Mhuire Day Center: an enthusiastic thank you for the time and energy you contributed to this project; thank you for your warmth, hospitality, generosity, and friendship! To Gustavo Romero, Glenn Adelson, and Ana Vollmar at the Harvard University Herbaria, and MyLien Nguyen, Mark Nesbitt, Bronwen Powell, and an anonymous reviewer: I am deeply grateful for your comments on this paper, and for your encouragement. I thank Roy Ellen at the University of Kent at Canterbury and Laura Hastings at the Royal Botanic Gardens, Kew; Gabrielle Hatfield for her encouragement of the study of Irish ethnobotany; Séamas Ó Catháin and Bairbre Ní Fhloinn at the Department of Irish Folklore, University College of Dublin. I also thank the Global Diversity Foundation and The University of Kent at Canterbury for their generous financial support of this project.

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Harvard Papers in Botany, Vol. 12, No. 2, 2007, pp. 369–386.

County Kerry was isolated from advances in technology and infrastructure longer than urban centers. For example, electricity and antibiotics, two key elements of biomedical treatment, did not arrive on the Dingle Peninsula until the 1950s. Currently, as in the past, there is no national health care scheme in Ireland; health care is dependent upon the patient's financial capacity. Perhaps because of these and other reasons, folk medicine and healing is a sort of people's medicine, and an integral aspect of Irish cultural history.

In contrast with regions with high endemism, Ireland is not particularly floristically diverse (Pilcher and Hall [2001] cite 815 flowering plant species in the *Flora Hibernica*, compared to 2200 flowering plants in France and 1128 found in Great Britain), and it has long been considered a developed country. However, literature and ethnographic data from the present study reveal an ethnomedical tradition that has been practiced across the island for hundreds of years, that is strongly linked with the natural environment, and that figures prominently in Irish myths and legends (Allen and Hatfield, 2004; Buckley, 1980; Gregory, 1920; Logan, 1980; Moloney, 1919; Nolan, 1989; O'Farrell, 2004; Ó Súilleabháin, 1977; Wilde, 1890, 1925; see also the University College of Dublin Department of Irish Folklore Archives).

One such legend is that of Ochtrinil and how knowledge of medicinal plants was first transmitted to the people of Ireland. In this legend, there was a powerful Druid named Diannacht, who was a physician to the Tuatha de Dannan, the ancient fairy race of the West of Ireland. At one point, Diannacht's son Miach and his daughter Ochtrinil came to learn more than their father. In a fit of jealousy, Diannacht murdered his son Miach. There was great consternation around the land, as Miach knew the curative power of every herb that grew, and now it seemed that knowledge had been lost. But the following spring, herbs grew above Miach's grave in the shape of his body. Miach's sister Ochtrinil came, and saw 365 herbs growing, each above the body part that it would heal. She catalogued and sorted all the herbs, so that their preparations and applications would be known. But during one night, their jealous father secretly mixed up all of the herbs again. This is the reason that to this day, humans continue to recover their lost knowledge of the therapeutic applications of the plant kingdom (Danaher, 1966; Moloney, 1919; Wilde, 1925).

The following study highlights the knowledge of medicinal plants held by women living in rural County Kerry, Ireland. I investigated the content and source of women's knowledge of folk medicine, and their reasons for continuing or discontinuing the use of it. One goal was to compare the knowledge of the older generation with that of a younger generation in the community. In what follows, I will describe ethnomedical knowledge that was shared by women from communities around the Dingle peninsula, including the applications of medicinal plants, the sources of the women's knowledge, the mechanisms of transmission of that knowledge, and the sources of plant ingredients. I then analyze factors of change that have influenced the content of their knowledge of local cures. I argue that, while knowledge of wild plants has dissipated between the generations of women interviewed, the content of knowledge of simple home remedies has adjusted to reflect the contemporary economy. Though in previous years, a scarcity of medical treatments and poverty necessitated knowledge of locally growing plants that could be used as medicine, the associated environmental knowledge required to identify and select medicinal plants is now transmitted out of choice rather than necessity. The amount of ethnomedical knowledge is not being lost between generations; it is the content of that knowledge that is changing.

Site Description

The Dingle Peninsula, or Chorca Dhuibhne, is a rural part of a Gaeltacht region, where the Irish language is spoken. At the base of the Dingle peninsula is Tralée, a small city and the largest in the county. While there is a clinic and hospital located in Dingle that will treat minor illnesses, residents of the peninsula must drive to the hospital in Tralée for obstetrics, surgery, or treatment of major illnesses. It takes one hour by car to reach that hospital, and the road to it can be perilous, as it skirts cliffs and passes over mountains.

The climate of the peninsula is temperate. Pine-tree farms are visible on some of the mountainsides, but the majority of land was long ago cleared for farming and livestock.[3]

[3] Pilcher and Hall estimated that most trees were cleared from the landscape across Ireland at least 1000 years ago (Pilcher and Hall, 2001).

FIGURE 1. The town of Dingle and Dingle Bay as seen from the Connor Pass. Photograph by J. M. Dolan.

Small-scale farms cover the landscape. Livestock, especially sheep, populate the mountains and the valleys. Furze (*Ulex europaeus* L.) forms most of the hedgerows that divide pastures. Hawthorn (*Crataegus sp.*), molded by the most frequent direction of the wind, dot windswept hills and valleys.

Dingle is located on a hidden harbor that is enclosed by a steep spit of land, with a narrow opening to Dingle Bay, to the east (Fig. 1). In addition to farming, the sea continues to be a source for human livelihoods in the area. Early in the 19th century until the years of the Irish famine (1845–1848), Dingle was a center for linen production. From the Great Famine until the 1970s, sea-based trades were the predominant source of local livelihood. Since the early 1970s, the local economy has transitioned from dependence on farming and fishing to a tourist-based market economy.

Beginning with the 1990s, a great surge in the Irish economy precipitated change in the Republic, earning the flourishing economic force the nickname of "The Celtic Tiger." Studies have shown that, amid rapid modernization, folk traditions based on the environment become historicized; as change accelerates, cultural traditions may be perceived by younger generations as arcane (for example, Heckler, 2002; Ohmagari and Berkes, 1997; Turner, 2003).

RESEARCH METHODS

Ethnographic notes on folk medicine in the archives at the University College of Dublin (UCD) were studied to establish a base of knowledge about Irish folk medical tradition. The archives there contain information that was collected from people throughout the Republic of Ireland by ethnologists, folklorists, and schoolchildren during the 1930s and 1940s. The files on folk medicine contain information about plants and other substances that were used to heal, as well as beliefs and traditions associated with illness and health.

Twenty-eight women from the Dingle Peninsula between the ages of 65 and 90, and 11 women between the ages of 20 and 40 were interviewed for their knowledge of home remedies. Elder informants were chosen by visiting the Gairdin Mhuire Day Centre for the elderly (Fig. 2) and by the suggestions of community members who knew of local people thought to have knowledge of medicinal plants. Similarly, younger informants were chosen by the snowball effect, based on recommendations of community members. Though all interviews were

FIGURE 2. Morna Hilton, Alice Flahive, Eileen Galvin, and Nora O' Donnell with the author at the Gairdín Mhuire Day Centre, May 2004. Photograph by Natalie Russell.

conducted in the town of Dingle, project participants lived in towns all across the peninsula. Six traditional healers/herbalists who lived in various locales in Ireland were also interviewed. Ethnographic research methods of semi-structured and unstructured interviews were employed.

During interviews, informants were asked to describe traditional remedies, their preparation and administration, from who the treatment was learned, and to whom knowledge of the treatment was passed. The source of every cure was not always remembered but was accounted for as best as possible. All informants gave prior informed consent to allow their words to be used for the purpose of academic study and publication.

With permission, a form created at the Centre for Economic Botany at the Royal Botanic Garden, Kew, for an ongoing study entitled "Ethnomedica: Researching the Herbal Traditions of Britain" was used to record the data collected about remedies. A flora of the Dingle Peninsula that is written in Irish and English was used for photo-elicitation, and as a checklist for Irish, English, and Latin botanical names. Plant names that were not included in that flora were verified using Mabberly's (1987) *The Plant Book*. The online checklists www.ipni.org and www.algaebase.org were also consulted to verify plant nomenclature.

LITERATURE REVIEW

Only four scholarly works on Irish ethnobotany exist, two of which were unpublished graduate dissertations at the time of this study and one of which was written in Irish by Clár Nic Aoidh (year unknown). That study is deposited at the public library in Bunbeg, County Donegal. Though there are differences in the Irish language between the north and the south of Ireland, Clár Nic Aoidh's thesis was one of the sources consulted for the Irish plant names in the table below. The other unpublished work is a graduate study of ethnoveterinary traditions in County Kerry, carried out by John O'Flaherty of Fahavane, Kilflynn, Tralée, in 2004. Moloney's *Irish Ethno-Botany* was published in 1919 and is a fascinating Nationalist testimony to the connections between natural environment, folk medicine, cultural autonomy, health care, and political and economic agency. Allen and Hatfield's (2004) *Medicinal Plants in Folk Tradition: An Ethnobotany of Britain and Ireland*, published

one month before the present fieldwork was carried out, is a comprehensive reference on Irish ethnobotany.

Despite the dearth of scholarly works on Irish ethnobotany, those extant, along with ethnological and popular studies, portray a folk medical tradition that has a consistent core and some expected regional and individual differences. Further, data collected from the women in County Kerry for this study were consistent with findings in the archives at the University College of Dublin and with literature about folk medical practice throughout Ireland (Buckley, 1980; Logan, 1980; Moloney, 1972; Nolan, 1988–1989; O'Farrell, 2004; Ó Súilleabháin, 1970; Skrabanek, 1994; Uí Chonchubhair and Ó Conchúir, 1995). Unsurprisingly, fewer traditional remedies were described by the women who were interviewed than those represented by literary resources. That is because, while literary resources encompass a collected knowledge from across the island of Ireland, spanning oral history without temporal context and including individuals interviewed throughout the 20th century, this study represents the traditional remedies remembered by 45 women over the course of two months, who lived on the Dingle Peninsula. While there were more spatial and temporal delimitations placed on this ethnographic study, the fact that the data reported by the women in this study match the data from printed resources underscores the cultural significance of the plant remedies they described (see Turner, 1988).

Social Context of Ethnomedicine in Ireland

Practices drawn from Druidic, pre-Christian, and Catholic faith are connected to folk healing in Ireland. "Gifted" people, sacred places, folk medicine, prayers, charms, religious symbols, and saints are all components of traditional healing. Individuals who are known as healers treat patients on a basis of trade or donation; these individuals are known in their community, but some are known across Ireland and are visited by people regularly to this day. Pilgrimages to holy wells and sacred places are made with prayers for healing and health. One important aspect of the folk medical tradition is that it has historically been available to anyone and offered free of charge, or by trade or donation.

The following are elements of Irish folk medical tradition:

(1) Bone-setters were traditionally consulted for broken bones, sprains, and injuries;
(2) Midwives care/d for pregnancy and birth;
(3) Holy wells and healing places are still visited and prayed at for their curative powers;
(4) Healers are people who are believed to have one or more specialized cures for which patients travel long distances. These cures are kept secret, and are acquired by birth or marriage, or they are "given" to the healer by another healer. Men or women can be considered healers if they are born "breach," or feet first, if they were born posthumously (i.e., after their father's death), or if they are the 7th son of a 7th son. People also become healers if healing is "in the family," and knowledge of a particular cure or set of cures is passed from relative to relative. If a man and woman who are unrelated but have the same surname marry, they may also be considered healers;
(5) "Old-time cures" and home remedies are made from plants growing in the local environment (Fig. 3, 4), or other ingredients that are easily accessible, and are shared within communities and families as practical and effective ways to maintain health and heal sickness.

FIGURE 3. *Digitalis purpurea* L. near Mount Brandon. Photograph by J. Crain.

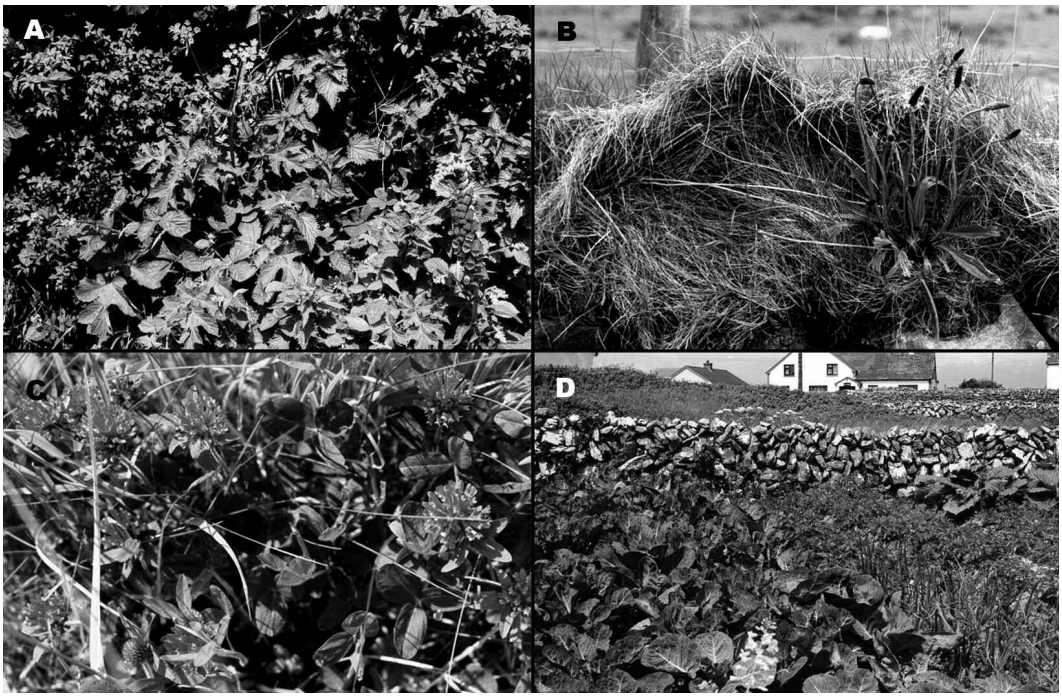

FIGURE 4. Local plants used as medicine. **A**, hedgerow containing *Digitalis purpurea* L. and *Urtica dioica* L.; **B**, *Plantago lanceolata* L.; **C**, *Trifolium pretense* L. ; **D**, *Brassica* spp. and *Allium* spp. growing in a garden. Photographs by J. M. Dolan.

RESULTS

Medicinal Plants in the Context of Irish Ethnomedicine

Informants and literary resources both described folk medicine as tied to ecology and trade. Medicinal plants were selected on the basis of what was immediately available; the niche of knowledge of the person selecting the plants was related to his or her livelihood. Informants referred to folk remedies as "old-time cures," or just "cures." Cures were remedies of plant, animal, or mineral origin that were collected from the surrounding environs or grown in the garden. Those were set apart from comparatively modern home remedies that were purchased at the chemist, or within the past 10 years, at the health food store.

Women described a wide range of remedies. Some were store-bought medications, such as Paracetemol (an analgesic), teas, *Aloe vera*, garlic *(Allium sativum* L.), honey, vinegar, bread soda (baking soda), and alcohol. Other remedies fell into the category of "old-time cures" because they were thought to be traditional, and the knowledge of those remedies had been "passed around" in the community. A few informants stated that they did not use medicine of any kind. Some informants remembered old-time cures but said they no longer used them; others knew of folk remedies that they had not tried themselves.

Informants indicated that plant and animal cures had largely been eclipsed by biomedicine because it took less effort to administer and took effect more quickly. However, their collective description of ethnomedical tradition was significant, exemplifying knowledge of folk medicine that is still very much alive, even if the practice of it is dwindling. Older participants knew of and had experience using remedies sourced from the local environment more than the younger group, who were more likely to self-treat with modern-day store-bought home remedies. Informants' knowledge on the subject was highly varied in quantity and depth within both the older and younger groups. Folk remedies were characterized by all as one possible therapeutic choice out of many in an environment of medical pluralism.

Some examples of household ingredients that were described were brandy, bread, bread soda

(baking soda), Epsom salts, gin, honey, iodine, raisins, red soap, soap, sugar, sulfur, table salt, vinegar, and whiskey. Mineral substances included a bunch of keys, a copper bracelet, and a gold wedding ring. Animals and animal substances included cobwebs, cow feces, cow and goat milk, a dog's lick, seal oil, oil of an electric ray, goose grease, a gander's beak, and snail slime. Plant ingredients, listed in English vernacular, Latin, and Irish, are shown in Table 1.

Participants of this study mentioned 47 plant ingredients that represent 31 plant families (Fig. 3, 4). Some of the home remedies described had plant ingredients but are contemporary preparations that can be purchased in a health food store, such as lavender oil, evening primrose oil, *Aloe vera*, and the homeopathic remedy arnica. They were omitted from Table 1 because, while folk knowledge may have led to the mass manufacture of such remedies, they no longer fall into the domain of folk preparation.

Plants in the Asteraceae family were most well represented, especially dandelion (*Taraxacum officinale* F. H. Wigg.). One elder described dandelion as "made into dandelion wine, for bladder complaints." Others said the secretion of the stem—"the milk"—was used to remove warts, and the leaves were made into tea to encourage urine.

The second-most-represented group of plants was algae, or seaweeds. Irish moss (*Chondrus crispus* Stackh.), and seaweeds described as kelp, dulse, seagrass, and seaweed in general (probably species of *Laminaria, Palmaria*, *Fucus*, and *Chorda)* were named as cures for arthritis, rheumatism, colds, and sore joints; lauded as delicious as a gelatin dessert; said to be useful as fertilizer; and attributed with health-fortifying properties.

By far the most frequently mentioned plant remedies were nettles (*Urtica dioica* L.) and dock (*Rumex sp.*). Nettles made into a soup or tea were described as "good for health"; served as a vegetable for a blood tonic; used like spinach for iron; boiled to clear blood, for general health; given as a tonic to cure everything; made into soup with cabbage; and boiled and fed to dogs and turkeys for food. Nearly every person who participated in this study advised me that dock will take away the sting of the nettle; and if one is stung, not to worry because "the one always grows near the other." Local naturalist Bernie Goggin described dock, nettles, charlock (*Sinapis arvensis* L.), and silverweed (*Potentilla anserina* L.) as famine foods, or "well-known as staples for when there's shortfalls from previous year's harvest."

Reports from both the younger and the older participants on the uses and hazards of these two plants are marvelous examples of environmental knowledge that is informed by habitat and cultural tradition. The prevalence of nettles and dock in interviews for this study could potentially be attributed to the timing of interviews, which were conducted between April and June. Kay Lynch, a long-time resident of the Dingle peninsula, aptly summarized the seasonality of the study. "Long ago," she said, "we were always treated with our nettles in the spring time. This is the nettle time!"

As I was concluding the collection of data in June, Aíne Delaney, one of the women interviewed for the study, remarked, "The elder trees (*Sambucus* L.) are just about to burst into bloom." Residents may highlight different plants if the study area is revisited at another time of the year.

TABLE 1. Local species described as ingredients of traditional medicine (after Cameron [1883], Nic Aoidh [Year unknown], Uí Chonchubhair and Ó Conchúir [1995], Moloney [1919] and informants).

ENGLISH VERNACULAR	BOTANICAL LATIN	PLANT FAMILY	IRISH PLANT NAME	USE OF PLANT
Bee borage	*Borago officinalis* L.	Boraginaceae	Borrairte gorm	Flowers eaten or in a drink for a cooling effect
Belladonna/ Deadly nightshade	*Atropa belladonna* L.	Solanaceae	Miotóg buide, Lus mór Coillead	To poison someone; for chapped hands; as a plaster, for a bad back; for a fever
Blackberry	*Rubus* spp.	Rosaceae	Sceach/ Dris	Leaf to draw a splinter or jag out of finger

TABLE 1. CONT.

ENGLISH VERNACULAR	BOTANICAL LATIN	PLANT FAMILY	IRISH PLANT NAME	USE OF PLANT
Bogbean	*Menyanthes trifoliata* L.	Menyanthaceae	Bearnán lachan, Bachrán	As a spring cleanse, for the liver; cleanses the blood
Burdock	*Arctium lappa* L.	Asteraceae	Meacan doga	For boils, arthritis, and rheumatism
Cabbage	*Brassica oleracea* L.	Brassicaceae	Cabáiste	For the blood; to soothe the womb after giving birth
Carrageen moss	*Chondrus crispus* Stackh.	Gigartinaceae	Carraigín	For arthritis; for a drink or dessert; for coughs, chest; for rheumatism, bronchial complaints, constipation
Chamomile	*Chamaemelum nobile*	Asteraceae	Camán meall	For a good rest; for sleep; for calming, chicken pox, skin irritations; calming when pregnant
Charlock	*Sinapis arvensis* L.	Brassicaceae	Praiseach bhuí	Famine food
Cloves	*Syzygium aromaticum* (L.) Merr. & L. M. Perry	Myrtaceae	—	With honey, lemon, and whiskey for a cold, bronchitis; for a toothache
Comfrey/ "Knit bones"	*Symphytum officinale* L.	Boraginaceae	Lus na gCnamh, Meacan dubh	Broken bones; sore back; asthma; pains in the back; twisted ankle, sprains; vitamin B12
Dandelion	*Taraxacum officianale* Weber	Asteraceae	Caisearbhán, Gas Searbhán	To encourage urine; use the "milk" to get rid of warts; as wine for bladder complaints; detoxification
Dock	*Rumex obtusifolia* L.	Polygonaceae	Copóg sráide	Relieves nettle stings; famine food; split stem and rub on nettle burn
Dulse	*Palmaria palmata* (L.) Kuntze	Palmariaceae	Duileasc mín	Coughs and bronchial complaints
Early purple orchid	*Orchis mascula* (L.) L.	Orchidaeae	Magairlín meidhreach	For love charms
Elder flowers	*Sambucus nigra* L.	Caprifoliaceae	Trom	Made with pancakes, into fizzy drink; for colds; warm elder flower drink for a fever
Feverfew	*Tanacetum parthenium* L.	Asteraceae	Mead-duać, Lus deartan	For arthritis, rheumatism, migraines
Flax	*Linum usitatissimum* L.	Linaceae	Líon; Rór-líon	For chest conditions such as bronchitis; now used as a laxative

TABLE 1. CONT.

ENGLISH VERNACULAR	BOTANICAL LATIN	PLANT FAMILY	IRISH PLANT NAME	USE OF PLANT
Floxglove/ "Fairy fingers"	*Digitalis purpurea* L.	Scrophulariaceae	Lus mór, Mearacán an diabhail	Makes heart beat faster
Furze/ Gorse	*Ulex europaeus* L.	Fabaceae	Aiteann gallda, Aiteannach	Made into tonic
Garlic, cultivated and wild	*Allium sativum* L.	Liliaceae	Gaírleóg, Gairleog Mhuire	For a bad cold; for congestion; for heart and blood, circulation; crushed, worn inside socks for aches and pains; for chillblains
Goosebury bush	*Ribes grossularia* L.	Grossulariaceae	Spriúnán	Use jags (thorns) to cure a sty in the eye
Hart's tongue fern	*Asplenium scolopendrium* (L.)	Aspleniaceae	Leadhb gadhair	Made into an ointment for burns
Hemlock	*Conium maculatum* L.	Apiaceae	Milbhear, Tréanlus	To poison someone
House leek	*Sempervivum tectorum* L.	Crassulaceae	Leigis, Leiceas, Leicis	For health
Ivy	*Hedera helix* L., and possibly *Hedera hibernica* Hort.	Araliaceae	Eidhneán	For boils and infections
Kelp	*Laminaria* L.	Phaeophyceae	Feamain builgíneac, Feamain cáilíeac	For arthritis, rheumatism, and constipation
Meadowsweet	*Filipendula ulmaria* (L.) Maxim.	Rosaceae	Airgead luachra, Lus na bhFia	For a pain in the hips, when it hurts to breathe
Nettles	*Urtica dioica* L.	Urticaceae	Neantóg	Blood tonic; cures everything; cooked leaves as famine food for humans, dogs, and turkeys; for the blood, iron, health, and boils
Oats	*Avena sativa* L.	Poaceae	Coirc	For skin; for a headache
Onion	*Allium cepa* L.	Lilliaceae	Uinnean	For a bad cold; for a bee sting; to draw out poison
Peas	*Pisum sativum* L.	Fabaceae	Piseanna garraí	For measles
Peppermint	*Mentha piperita* L.	Lamiaceae	Lus an Piobair	Digestion, for settling the stomach; calming
Ribwort plantain	*Plantago lanceolata* L.	Plantaginaceae	Slánlus	For wounds; for insect stings
Greater plantain	*Plantago major* L.	Plantaginaceae	Slánlus mór, Cúl Phádraig	For wounds, as a poultice for varicose ulcers; for insect stings

TABLE 1. CONT.

ENGLISH VERNACULAR	BOTANICAL LATIN	PLANT FAMILY	IRISH PLANT NAME	USE OF PLANT
Potato	*Solanum tuberosum* L.	Solanaceae	Bun-tata	For swollen glands
Primrose	*Primula vulgaris* Hudson	Primulaceae	Samhaircín	For rheumatic pains
Red clover	*Trifolium pratense* L.	Fabaceae	Seamair dhearg	For coughs
Senna	*Cassia* spp.	Fabaceae	—	For measles
Silverweed	*Potentilla anserina* L.	Rosaceae	Briosclán	Famine food
Sloe / Blackthorn	*Prunus spinosa* L	Rosaceae	Áirne	For sloe gin
Spearmint	*Mentha spicata* L.	Lamiaceae	Mismín garraí	For settling the stomach; calming a person
St. John's Wort	*Hypericum pulchrum* L. (common) or *H. perforatum* L.	Clusiaceae	Beathnua baineann, Luib Eoin Baiste	For feeling down or depressed
Peat moss/ Turf	*Sphagnum* spp.	Sphagnaceae	Síoda na móna	"Bog holes" for chapped hands, knees, elbows, and feet; turf soot for a bad tummy
Wood sorrel, or shamrock	*Oxalis acetosella* L.	Oxalidaceae	Seamróg, Samad coíllead	Tuber for blood
Water lobelia	*Lobelia dortmanna* L.	Campanulaceae	Plúr an locháin	For scarlet fever
Yarrow	*Achillea millefolium* L.	Asteraceae	Athair talon	For colds and rheumatism

Sources and Application of Ingredients

Participants were interviewed about the source of folk medical ingredients. Results are summarized in Fig. 5. Note that 60% of the medicinal plant products described by the younger pool of informants were described as purchased at a store, usually the local health food store or pharmacy. In contrast, 67% of the medicinal plants described by elder informants were grown in a home garden or collected from the wild (Fig. 5).

Application techniques of the folk medicine described by women who participated in this study fall into the following five categories:

(1) Direct application: leaf, stem, or root may be cut or ripped, sometimes masticated, then applied or rubbed on the affected area.
(2) Tea or other kind of drink: plant parts are boiled or soaked for a period of time, then resulting liquid is consumed, either hot or cold.
(3) Food: certain plants prepared as part of a meal are believed to have healing and health-fortifying properties.
(4) Poultice or spread: plant ingredients are pounded or chopped, then thickly applied to affected area, with or without a covering to keep the poultice in place.
(5) Bath: hot water is poured over plants, then the patient is submerged.

Sources and Mechanisms of Knowledge Transmission

Women interviewed reported that sources of their knowledge of traditional medicine were family members, friends, the old in the community, the general community, Irish culture, their profession, traditional healers, teachers, local shops, and individual experimentation. Songs, parables, and printed material were also reported as sources of folk knowledge.

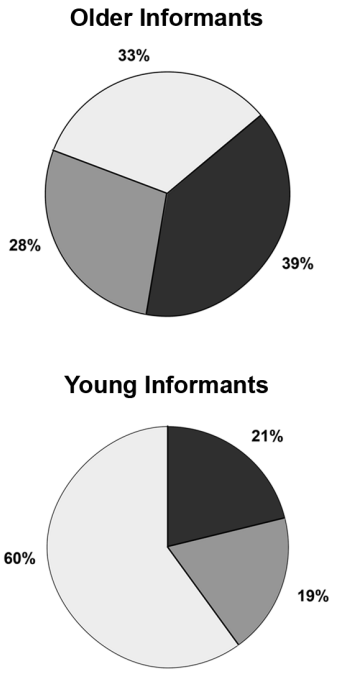

FIGURE 5. Sources of plant medicine. Dark grey, collected from the wild; grey, grown at home or locally; light grey, purchased from a store, chemist.

Table 2 cites the sources of the older and younger women's knowledge of folk medicine. Every reference made to a source of knowledge was entered; sources were labeled as informants described them, although some sources were combined for the sake of simplicity. For example, the description "family in general" was combined with older familial relatives other than parents and grandparents. "The nursing profession" was included because several women who were interviewed were practicing or retired nurses. Other informants had family members who were nurses. One informant explained that nursing and teaching were standard professions for women in the area.

Older project participants attributed their knowledge of most of their cures to the fact that they were "well-known in Ireland" (21%). The other greatest sources of the elders' knowledge of folk medicine were the general community (18%), their mothers (15%), their families (in general or other than their parents and grandparents, 12%), and elders in the community (9%).

Younger informants could remember learning most of the home remedies they reported

TABLE 2. Sources of informants' knowledge of traditional medicine.

DESCRIPTION OF SOURCE	NUMBER OF REFERENCES		PERCENTAGE OF TOTAL	
	OLDER	YOUNGER	OLDER	YOUNGER
Mother	15	26	15%	20%
Father	0	4	–	3%
Parents	2	1	2%	0.8%
Grandmother	1	8	1%	6%
Grandfather	2	0	2%	–
Grandparents	2	10	2%	8%
Family (in general, or other than above)	12	19	12%	15%
Primary school teacher	0	1	–	0.8%
Elders in the community	9	1	9%	0.8%
Neighbor or friend	7	17	7%	13%
General community	18	18	18%	14%
Spouse	1	0	1%	–
Chemist or the health food shop	3	14	3%	11%
Well-known in Ireland	21	6	21%	4%
Published source	3	3	3%	2%
Individual learning	1	1	1%	0.8%
Nursing profession	3	0	3%	–

from their mothers (20%). In fact, two project participants said that their mothers were the source of nearly everything they knew on the subject. The next most frequently remembered sources of folk medical knowledge amongst the younger participants were their families (in general or other than their parents and grandparents, 15%), the general community (14%), a neighbor or friend (13 %), and the chemist or the health food shop (11%).

Informants reported their knowledge of folk medicine as having been passed to them verbally and taught by example. They remembered learning remedies by instruction and by repeating an effective treatment that they had observed. Informants had specific memories of the simplicity, efficacy, or awful taste of certain cures. They cited experience of effective treatments of themselves, their friends, or their family members as the best way to remember folk medicinal recipes. Individual learning from reading books and magazines, or through experimentation, were other ways informants learned about home remedies. Several informants showed me books and magazines that contained information about practical home remedies that was useful to them.

Many participants of this study also knew rhymes in English and Irish related to traditional uses of plants. For example, this rhyme is about the sting of nettles and dock, its "cure":

"Ící pící ar aghaidh an chlaí
Ící pící ar chúl an chlaí
Má bhaineann tusa le ící pící
Bainleadh ící pící leatsa!!"

Caitríona Ní Chíobháin (age 22, An Ghráig) relayed this rhyme and said children in the schoolyard acted it out. A rough English translation is "Don't go near the nettles because if you go at them, they go at you. But if you do, then the dock leaf will heal you."

"Neamtoigín a dhróigh mé
Cupoígín a leigheas mé."

Aíne Delaney, age 54, of An Ghráig shared this rhyme. It means "The nettle stung me and the dock-leaf cured me."

Alice Flahive of Anascaul remembered the words, "Dock leaf, dock leaf cure me," said as a rhyme to be "good for the burn of a nettle."

Aíne Delaney remembered another rhyme about a sea-plant of local importance: "Sleadai Sleaidai rud gan naire cuirenn se beannach ir muintir na Ghráig.," meaning "Seaweed, seaweed, a thing without shame. It gives diarrhoea to the people of Ghráig."

Kay Lynch (age 60s, of Dingle) recited a saying about the use of an ivy leaf (*Hedera helix*, or possibly *Hedera hibernica*) to cure a boil: "One side draws and the other side heals." Reciting that helped Kay to remember the cure, until she was stalled by the cryptic nature of the saying. At last, she remembered it is the underside of the ivy leaf that draws—as the stem must be removed—and the shiny side that "seals" the boil, once the "poison" is drawn from it.

Natalie Russell (age 39, of Dingle) remembered that when she was young, children believed they would wet the bed if they picked dandelions (*Taraxacum officinale*). Because of this popular belief, dandelions were called "pissy-beds." Although one may not wet the bed from picking a dandelion, it is true that dandelion leaves or roots have a diuretic effect if they are ingested. This local children's belief—as reported by Natalie—was an example of an early understanding of phytotherapeutic properties of dandelion.

Nearly everyone spoke of nettle stings and the myriad of ways dock leaves can be applied to heal them. The apparent prevalence of nettle stings was accompanied by well-known regional ecological knowledge that dock species are nearly always found growing next to nettles. This environmental knowledge is part of a larger spiritual and ecological wisdom shared by Aíne Delaney—that often, "the poison grows beside the cure."

Participants provided a variety of perspectives on contemporary use or avoidance of folk medicine. Their reasons seemed to be dependent on the circumstances surrounding the treatment of illness, and on their lifestyle. Reasons women provided for selecting traditional medicine in favor of other medical therapies were that they do not trust modern medicine; biomedicine and doctors are too expensive; they do not trust doctors; they are now using home remedies from around the world, made available by health food stores; and sometimes folk medicine is the only thing that works. Reasons women said they did not use traditional medicine were that biomedicine is convenient; biomedicine works well and quickly; biomedicine is now accessible to them; they or their families are not interested in continuing the practice of traditional medicine, as it is too strenuous; and they do not take medicine of any kind. These reasons have all resulted in change in the knowledge and use of medicinal plants, and change in the transmission of that knowledge.

Discussion

Data can be grouped into six socio-cultural factors that appear to have influenced the acquisition and transmission of women's knowledge of traditional medicine. Those phenomena are occupation, necessity, family, community, cultural significance, and the Irish language.

Occupation

Informants described environmental knowledge as linked to traditional land- and sea-based occupations, such as farming and fishing, or to specialized knowledge, such as that of a healer or bonesetter. They said that fewer people were engaged in those trades; and as tools and technology related to them have changed, knowledge of local environmental resources, such as plant- and animal-based cures, have dwindled. They suggested that occupation-related knowledge of folk medicine was most often shared between men and women, rather than divided by sex.

One elder had a grandfather and granduncle who were both bonesetters and fishermen. The two used oil from fried seal meat to treat rheumatism. People in the area knew that her family members could set their bones, and had cures as well. Her mother used carrageen moss (*Chondus* spp.) for colds, bronchial complaints, and food.

Alfie Hughes (age 37, An Ghráig) spoke of fishing with an older man who used the oil of an electric ray to treat arthritic joints. And a young woman (age 22) from An Ghráig said, "The best cure is the ocean. Everything is based on the ocean here."

Other informants' occupations and personal interests led them to learn of traditional and contemporary home remedies. Mothers who stayed at home to care for children reported simple household treatments for them. Several women worked as nurses; they credited their profession as the source of their learning. One younger informant worked on an herb farm and had a personal interest in naturopathic and homeopathic remedies. Two traditional healers who were interviewed carried on Irish ethnomedical traditions because of their personal interest, but also incorporated homeopathic and naturopathic remedies into their healing practice. They were "passed" the knowledge of special "cures" but drew upon a medically pluralist amalgamation.

Necessity

The older women characterized their knowledge of medicinal plants as dwindling because it was no longer vital to survival. Informants attributed this to the availability of more and diverse medical choices. Elderly participants spoke of a decreased reliance on folk medicine due to improved transportation within and around Ireland, and increased access to Western biomedical treatment and complementary and alternative medicine. They spoke of a time, described as "not too long ago," when it was necessary to rely on folk medicine and local traditional healers "because there were no hospitals." Younger participants stressed the use of home remedies as a choice rather than a necessity.

Family

Participants recounted anecdotes of their families' use or avoidance of home remedies. Most indicated that family members were a significant source of knowledge of traditional medicine. Informants described experiences related to healing and remedies that involved more than one family member. Often, a sibling was "sent" to collect an ingredient so an older relative could prepare a home remedy for an ailing child. One of the older informants, Josie Curran, could remember a time when her mother sent her cousin to collect turf soot from halfway up the inside of their chimney to prepare a remedy for her "bad tummy."

In contrast, Ena Keogh (age 90) said she doesn't believe in folk medicine of any kind. She only recalled two recipes that were passed from her mother to her, and in turn, to her daughter. They were whiskey, cloves, lemon, and honey for a cold, and nettle soup; she said that everyone in her family used those recipes.

As previously mentioned, several of the younger informants credited their parents as their primary source of information on healing and health. Twenty-four percent of the younger women's remedies and 17% of the elders' remedies were remembered as learned from their parents. Fifty-three percent of the home remedies described by the younger women and 34% of the older women's remedies were remembered as taught by family in general. Cliona White (age 21) recounted many home remedies that she would use on herself and her siblings, nearly all of which she credited as taught to her by her mother.

Cavalli-Sforza and Feldman's (1981) theories of cultural transmission are useful for understanding the flow of transmission of knowledge among members of a group. Their theories, used by Hewlett and Cavalli-Sforza (1986) in their research of transmission of life skills among Aka Pygmies, stress the vertical pathways through which knowledge and skills are imparted. In their analysis, vertical transmission occurs between parents and children. Though women in Dingle emphasized their parents as a source of their knowledge, data collected from them show that their entire extended families, including their parents, were actually the most significant source of their knowledge of home remedies.

Community

Older and younger participants both credited "the general community" as a source of their knowledge of cures (18% older, 14% younger). While this answer may seem a default, I believe it points to a perception of local environmental and cultural knowledge. So, whereas the source of those remedies may not have actually been "the general community," the remedy was perceived as so locally well known that it was thought that the knowledge of it came from living within that community.

More than one of the older women recalled, "All the old folks that knew all the cures died about ten years ago." This type of comment indicates that older people in the community used to be perceived as purveyors of knowledge of environmental resources. One marked difference of source of knowledge between the two groups was that older women remembered learning cures from "the old in the community" much more than the younger women. Nine percent of the elder women's responses were credited as being taught to them by "the old in the community," whereas very few of the younger women remembered that way (1%). What follows are some responses from the older women when I asked them where they learned of a particular cure.

"All the old people would pass around the cures. There were no doctors at the time."
— Hannah from Inch

"I heard the old people say it a lot."
— Aíne Delaney, An Ghráig

"Usually if there was an old granny in the house, they would have the cures, so they were handed down."
— Teresa Courtney, Castlegregory

Cliona White (age 21, Dingle) summarized young people's process of learning folk medicine as follows: "Most people learn about home remedies from older generations in general. Nowadays people do pick them up from the health food store, but it's not the same as learning from the old people. They're the ones that know the in's and out's of them."

Younger participants did point to older members of the community as the purveyors of traditional knowledge, but when they actually thought about where they learned of a particular home remedy, they more often cited their families, a neighbor or friend, the general community, or the health food store.

Additional sources of information have been introduced to the "general community" in the past generation. Tourism has made communities around the Dingle Peninsula far less isolated than the past. While the tourist industry has brought revenue that has improved the local infrastructure, tourists have brought information from around the world. Television and the internet have both radically changed the sources and amount of information available to all. A diverse array of information, including that about sickness and medicine, has flooded the area.

The local health food store was a tremendous source of information among the women I interviewed. Sixty percent of the plant remedies described by the young women were purchased at the health food store or the chemist. Older participants made a distinction between "home remedies" from the store and "old-time cures" collected from the outdoors, but sometimes the boundary between the two was not so distinct. For example, most of the younger participants of this study were familiar with the use of the *Aloe vera* plant to treat burns. One older project participant, Anna O'Kelly, reported that she had recently discovered at the health food store the efficacy of *Aloe vera* for burn treatment.

Cultural Significance

Interestingly, one common response when a participant was asked the source of knowledge of a cure was, "It's well-known in Ireland." Other participants repeated, with a half-frustrated smile, "It's a known thing. It's just known." Henrietta from Lispole described many remedies as "things you just know, and you don't think about how." These sources of knowledge were grouped into the category "well-known in Ireland." As detailed above, the

source of 21% of the older women's cures was described as "well-known in Ireland."

This type of answer did sometimes seem a default, but I believe it actually points to an aspect of cultural learning, one that Ellen and Harris (2000) described as cognitively and culturally systemic, acquired as if by absorption by nature of living and growing up in a particular context. Contextualized knowledge is local cultural knowledge acquired, as if by osmosis, from living in a place. So, the "emic" (commonly-spoken by insiders) explanation that a cure was "well-known in Ireland" may be both a default answer and an "etic" (indicator to an outsider) marker of cultural salience.

And, for most of the remedies described by informants, that could have well been true. As previously indicated, nearly every remedy mentioned by the women in this study matched data on folk remedies across Ireland in the archives at the University College of Dublin. This confirms the informants' descriptions of certain plant remedies, such as nettles, dock, dandelion, kelp, dulse, and carageen moss, as "well-known in Ireland." Data collected in Dingle that differed from the data in the "Folk Medicine" section at UCD were probably descriptions of preparations that have become available since the 1940s, at the chemist, or, more recently, at the health food store.

Language

Traditional environmental knowledge of medicinal plants is also linked to the Irish language. Three older project participants reported plant ingredients in Irish for which they did not know the English names, but knew exactly where they were growing locally and what they were "good for." Aíne Delaney (54, of An Ghráig) described a plant used by her neighbor to prepare a treatment for boils. Aíne and her husband could describe the plant but could not produce an English name for it, even after they searched through books. Finally, Aíne said she thought there might not be an English name for the plant.

Sean Scanlon and Dan Bruic described another plant that was also used for the treatment of boils. They said it was blooming right next to "the Skellig road" at that time, and they knew the plant's Irish name—meacan doġa—but not its English one. Later, the Latin and English equivalents were located as *Arctium lappa* and burdock, respectively. If there were indeed only Irish names for the above-mentioned plants, then traditional knowledge of that plant would disappear if it were not transmitted in the Irish language. Meaning can be lost as a verbal equivalent is approximated in the process of translation (Berlin, 1992).

The Irish language was suppressed for hundreds of years (Mac Annaidh, 1999). Today, Irish language is the official second language of the Republic of Ireland, and is a required subject in all schools. The government Department of Community, Rural and Gaeltacht affairs works actively to promote the use of the Irish language in all areas of the Republic, and there is an Irish language television channel, an Irish Radio Station, and Irish language newspapers, magazines, and websites. However, it is still considered an endangered language.

When a language becomes endangered, so does the culture and knowledge that language encodes (Maffi, 2001: 5–6). Wisdom that is thought, taught, and spoken in a particular language is changed when it is translated from that language (Berlin, 1992). Traditional environmental knowledge in the Irish language would be lost if people were to cease speaking Irish.

Irish names for plants apparently can also reveal the medical significance of the plant. For example, ribwort plantain (*Plantago lanceolata*) is called slanlús in Irish. "Slan" means "healing" or "to heal" and "lús" means "herb." This plant, among many other possibilities, gained the ubiquitous title of "the healing herb" at some point in Irish history. Only one informant of this study remembered slanlús as a remedy, and she only knew its Irish name. Peg O'Connor (age 87, Cloghane) remembered using it to heal a wound on her son when he was a child.

Though it was beyond the scope of this study, it would be worthwhile to investigate traditional knowledge encoded in Irish plant names, as many Irish names for plants also describe their ethnobotanical use. It would also be useful to quantitatively investigate whether depth of knowledge of the Irish language is correlated with traditional ecological knowledge.

The participants of this study believed that knowledge of medicinal plants had changed as a result of changes in economy and infrastructure, both on the Dingle Peninsula and in Ireland in general. With the development of the tourist economy, market-based and retail occupations have increased as choices of livelihood in the Dingle area, adding to the traditional jobs of farming, fishing, teaching, and nursing. In

addition, expansion of infrastructure and increased access to a variety of medical treatments have made folk medicine one choice among many treatments, rather than a necessity.

This is reflected by the types of home remedies reported by the younger group of informants versus the older group. The older group spoke about the "old days," when it was necessary to know cures or to go to the bonesetter because "there were no doctors." Family members and neighbors were farmers, fishermen, caregivers, healers, or bonesetters, all people who relied on what was available to heal the sick or injured. Most often, ingredients for cures were sourced from the local environment. In contrast, with the exception of three younger informants who had learned traditional practices from older people in their community, all of the younger informants cited store-bought remedies or spoke about cures as anecdotes they had heard.

Other studies of changes that affect the contemporary content of traditional environmental knowledge, such as Ohmagari and Berkes (1997) study of Cree women living in two communities around James Bay, Canada, and Nancy Turner's life work with First Nations people in the Pacific Northwest, record how economic changes from land-based to market-based livelihoods are accompanied by changes in the content of knowledge required for daily life. These studies and others, as cited below, show that knowledge of the environment is replaced with knowledge and skill-sets that are perceived to be more appropriate to contemporary contexts. The participants of this study show a similar dynamic. Older informants remembered folk remedies sourced from the local environment that they, for the most part, no longer use; younger informants reported mostly store-bought remedies. One older informant recounted how her father and uncle stopped practicing traditional healing because it became "too strenuous" for them after emigrating to America.

Müller-Schwarze (2006) writes that the content of botanical knowledge in the community where she lived in Panama was changing over time, rather than diminishing. Similarly, the older generation of women I interviewed knew more plant remedies from the local environment than the younger generation. Since the younger women knew of far fewer plants they could find outdoors to use as medicine, it can be said that environmental knowledge may have been "lost" between the generations. However, younger informants were well versed in plants and plant-based remedies that could be purchased at the local health-food store or chemist (pharmacy), thus reflecting the contemporary shift in their local economy. They also reported that they did not have the biological knowledge to identify most plants in the wild.

Müller-Schwarze (2006) argues that scholars put too much emphasis on the "loss" of cultural and environmental knowledge. I agree, and further posit: why should any group of people be slated as stewards of their cultural or environmental traditions, when they find those traditions to no longer be appropriate or even viable life-ways in contemporary times? Ellen and Harris (2000) wrote that, though cultural tradition is represented as being "static," it is actually far more fluid and is in a constant state of change, whether that state is invention, reproduction, or rejection. Following that, we can trust that communities and cultural groups will retain aspects of their traditions that are cherished. Unfortunately, when communities and the environment undergo rapid or forced change, it can be more difficult to preserve cultural tradition or environmental knowledge (see Heckler, 2002; Ohmagari and Berkes, 1997; Turner, 2003). In those instances, studies that link culture and the environment are timely and important.

Conclusion

There is evidence that the cultural transmission of knowledge of plants from the local environment that can be used as home remedies has decreased between the elder and younger groups of informants who were interviewed. Elder informants described many more plant-based remedies sourced from their natural environment and from cultivation. However, knowledge of home remedies itself isn't being "lost" but is changing to reflect an increase in options for medical treatment. Younger informants cited more home remedies that can be purchased at a store, such as essential oils, teas, and homeopathic remedies.

Project participants described less of a need to treat themselves and their families with folk medicine. This is due to an improvement in quality and access to biomedical facilities on the Dingle Peninsula, as well as a flood of complementary and alternative medical practitioners

and products. Knowledge and skill of folk medicine that was once learned alongside a trade that required a relationship with the local environment, such as farming and fishing, are no longer vital to survival.

Folk medicine has become mostly anecdotal among the women who were interviewed. However, some still chose to use home remedies or to visit to a healer because they perceived it as simple, cheap, and most effective. Distrust of the biomedical establishment and deference to cultural tradition were two motivating forces behind participants' use of folk medicine. Despite a reported dwindling of folk medical practice in the households of the informants, healers, and other individuals with a personal interest in Irish folk medicine continue to learn about traditional cures. Because of the link between Irish traditional medicine and the environment, those individuals are purveyors of cultural and environmental knowledge.

When dependence on plants from the local environment decreases, knowledge and use of those plants also decrease. In particular, biological knowledge of plants decreases, which includes what a plant looks like, where it grows, and its name in Irish or English. Those plants may then go overlooked and undervalued. What incurs is a loss of cultural tradition and biological knowledge, which may, in turn, effect a loss in biodiversity.

Data from this study draw a connection between cultural tradition and the natural environment, and reveal a loss of traditional environmental knowledge. Culture is a dynamic phenomenon that always changes over time and space, most poignantly due to the choices of human populations. Humans are engaged every day in making choices about how they wish to identify themselves, how they relate to their environment, how they wish to participate within their community or culture, and what practices learned from their community they wish to incorporate into their lifestyle. Studies of changes in the relationship between human communities and their natural environment can aid us in piecing together factors that affect changes in biological knowledge and help us to preserve knowledge that is key to maintaining cultural and biological diversity.

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