Introduction: "Pickle ash" and "high blood"

My first introduction to something that might be called "medical anthropology" occurred in 1969, although at the time, I had never heard that phrase. I was doing fieldwork on St. Helena Island in South Carolina as part of my Ph.D. work. St. Helena is a barrier island, just across the Broad River to the north from much better known Hilton Head Island. Interested in family organization in a black community (debates raged in the 1960s about "the black family"), I thought that a thorough investigation of such families in a real community would be worthwhile. As I pursued my genealogies and spoke with these kind people, I heard an occasional reference to the use of certain plants – they called them "weeds" – to treat various illnesses. Intrigued, I pursued the matter, and found a number of people eager to talk about it. Eventually, I was able to identify three dozen or so "weeds" that were part of everyday use; most were better known to older than younger Islanders, but most everyone knew something about it. The whole matter seemed very odd to me; today, surrounded by "health food" and "natural medicine" shops, with everyone taking Echinacea to stimulate his or her immune system, and Gingko to ward off Alzheimer's disease, it doesn't seem so unusual to hear about medicinal plants, but in the 1960s, it was odd indeed. I wondered if anyone else had ever used those plants for anything, and did they work? I can't tell that story here, even though the answers to these questions deeply inform my understandings of what I *will* write about. I have written a good deal about those issues, however, and some of it is readily available (see, for example, Moerman 1982, 1989, 1998b).

Some of this botanical medicine seemed quite empirical. The bark of a tree known as prickly ash (*Zanthoxylum americanum* or perhaps *Z. clava-herculis*) was reputedly a powerful treatment for diarrhea in pigs. Actually, what I was told was more colorful than this. One older gentleman said that the "pickle ash" would "check up run stomach in pigs," but that you had to be careful not to give them too much or you might "cork 'em for keeps!" These two species of plants, *Z. clava-herculis* (Hercules' club) and *Z. americanum* (prickly ash), were part of professional American medicine

for at least a century and were listed in the US Pharmacopoeia from 1820 until about 1930, when they were replaced with other, newer drugs.

But there were other aspects of this medical system which did not overlap with Western medicine. On the one hand, there was no talk about "germs," or "viruses," or even "stress." And nothing about avoiding sitting in drafts. But, for some reason, babies (my year-old daughter was with us in South Carolina) should never go outside without a hat on, even in the midst of a blazing August summer day. I'm still not sure why, but it seemed as if some kind of wraiths or spirits could enter the baby's head; I'm not sure people were really clear on just why this was the correct thing to do, but they got quite upset if I didn't put a hat on Jennifer. Then again, people from Kansas or Wisconsin usually aren't too clear on why you can "catch a cold" (a viral infection) after sitting in a draft or getting your feet wet. Regardless of whether it was all worked out logically, it was clear that these people had a very different understanding of illness than I did.

The most interesting aspect of this belief system involved the idea of a dichotomy in the body's "pressure." There was a constellation of symptoms which were due to the fact that the pressure of the body was too high: for example, childhood fevers, adult colds, and an illness typically experienced by older people characterized by nausea, dizziness, short memory and headache called "high blood." There was also an opposite condition, for which I never learned a distinctive name but which might have resembled "spring fever," characterized by weakness, lassitude, constipation, and, perhaps, something like depression.

The pressure in the body was considered to be a function of the blood. If the blood were too "sweet," your pressure would rise and you would get a fever or, perhaps, high blood. Note that this wasn't simply "blood pressure," but a more pervasive, generalized pressure. The blood could get sweet for several reasons, but the typical explanation was dietary: people tended, they said, to eat too much meat, sweets, and grease. The treatment for this problem involved taking medicines which would "bitter the blood." Typical medicines for this were the root of the coral bean (*Erythrina herbacea*), garlic (*Allium ampeloprasum*), life everlasting (*Pseudognaphalium obtusifolium*), horse nettle (*Solanum carolinense*), and Virginia snakeroot (*Aristolochia serpentaria*). The less common low blood conditions were treated with sweet medicines like sassafras (*Sassafras albidum*), carrot seeds (from Queen Anne's Lace, *Daucus carota*), sugar, and wine.

Although this African-American understanding of health and illness has been described in some detail since then (Snow 1993), at the time I had not heard of it. It seemed vaguely similar to the hot/cold systems of Latin America, but only in its form, not its content. Thus, there were two poles, but it was not a comprehensive classification of objects, with each

food being labeled "sweet" or "bitter." Regardless, as I thought about it more, I began to wonder what effect such a set of understandings and beliefs might have had on the actual healing processes in this community. It didn't take long for me to learn that, indeed, the "weeds" they were using were effective medications; what about the ideas they used as they mobilized their medicines? Did these make any difference?

I had been very broadly trained as a graduate student in anthropology; I didn't think of myself as a cultural anthropologist, or a biological anthropologist, but as what I called an "unhyphenated anthropologist" (with an ironic tip of the hat to Barry Goldwater, for readers old enough to remember). To me, a human being was simultaneously a biological and a cultural creature; biology and culture were, for me, the warp and woof of the human fabric. The clearest cases were evolutionary: the reduction of the size of the human dentition which accompanied the dramatic expansion of material culture over a million or more years; the apparent relationship between evolving neurology (evident in brain expansion) over the time of the unambiguous development of a symbolic culture in the past 100,000 years; and so on. But these things happened a long time ago, were hard to see, bedeviled with dating problems, and intensely controversial. I was eager to find a situation in which it was plausible to investigate the ways in which cultural and symbolic processes interacted with biological ones, in real time.

I stumbled on the placebo effect sometime in the mid-1970s. I don't remember just how. But it quickly became apparent to me that there were important anthropological possibilities in this topic. My first published paper on the matter was titled "The Anthropology of Symbolic Healing" (Moerman 1979). Although that paper discussed the meaningful quality of surgery, it wasn't until a bit later that I discovered placebo heart surgery, which became the center of my paper "Physiology and Symbols" (Moerman 1983). By then, as the title indicates, I had realized how important (and how utterly difficult) it was to avoid reductionism, to avoid the trap of sociobiological, or even evolutionary, determinism, in the analysis of health and healing. While it seemed clear to me that people who could respond positively to medical ritual or meaning might have an evolutionary advantage over their fellows who did not, I was very chary of an approach which found any odd institution or behavior explained as a device to enhance an individual's fitness or the inclusive fitness (the evolutionary success – the increased fertility – of an individual's close relatives). During the height of the Vietnam war, it seemed folly to me to think this way; I simply couldn't imagine any way that, say, 370,000 combat deaths in the American Civil War could enhance anyone's fitness, inclusive or otherwise.

The challenge became one of persistently trying to avoid "privileging" either biological or meaningful processes while simultaneously avoiding the simplistic dualism of "mind vs. body". As you will see later on, the process of thinking about your own pain – whether a banged shin or sprained ankle – can enhance or diminish the pain. The two elements are aspects of the same process.

This book, then, focuses on the problem of understanding what is commonly called the "placebo effect." I will argue that this is an unfortunate term, used carelessly for such a broad range of phenomena that we should probably abandon it; or, if we must keep it, we should use it only to refer to the changes observed in the subjects in a control group in an experiment. Many of those changes need have no relationship at all to those dimensions of human life which are simultaneously cultural and biological. And I will attempt to tease out of that heterogenous mass of phenomena the ones which engage the biological consequences of experiencing knowledge, symbol, and meaning. I will call those things the "meaning response." But I will argue as well that many more complex aspects of life work in essentially the same way for all human beings, and that many kinds of meaningful events in our lives – medical or otherwise – affect us for good or ill. And I will propose a general way of thinking about these issues and researching them.

A plan of the book

The book is in three parts. Part I describes the meaning response carefully. Part II outlines some applications, objections, and opportunities. Part III includes some broad conclusions regarding the relationship between meaning and biology.

Part I begins with a discussion of sickness and healing. Chapters 1 and 2 describe some of the factors involved in getting well. Chapter 3 describes some of the techniques used by researchers to sort out just what parts of a healing intervention can be attributed to different elements of it; this chapter shows how we can see placebo effects in a clinical trial, and why it is harder to see them as clearly in non-Western medical systems. Chapters 4, 5, and 6 consider the various factors which shape and moderate medical interventions. Chapter 4 focuses on relationships, especially between doctors and patients. Chapter 5 focuses on *formal* factors, such as the shape, color, and amounts of medicines, and reviews the meaning of surgery. Chapter 6 looks at more systematic sorts of knowledge which follow from cultural differences among peoples, and how they affect both illness and healing. Throughout, I develop the idea that the most important element in these factors, their underlying common factor, is "meaning."

Part II considers some applications of the idea of the meaning response. In Chapter 7, I review the field of psychotherapy and psychiatric medicine where the manipulation of meaning – in "talking cures," for example – is most evident and obvious. In Chapter 8, I review the neurobiology and cultural biology of pain; this area has the clearest and most complete experimental and cultural evidence for the role of meaning in medicine. In Chapter 9, I review two complex areas where much more needs to be researched, but where one can make plausible hypotheses about meaning and the significant improvement of human health; these areas, usually not thought of in this context, show how powerful the meaning response is as a way to understand health and healing. Chapter 10 addresses two other widely held theoretical approaches to placebo effects – conditioning theory and expectancy theory – and explains why I believe the approach through meaning is preferable. Chapter 11 addresses ethical issues which many have raised about the placebo effect and suggests an approach to dealing with them.

Part III, made up of the final two chapters, includes a synthetic account of these human biological processes. It suggests a model for understanding when they will, and when they will not, occur, and in particular why it is so hard to convince people about the validity of these notions which are, at one level or another, quite obvious – as obvious as the fact that you might smile when you see a puppy, or cry at a sad movie.

Although the use of inert medications, "placebos," can inform us about many fascinating aspects of human cultural and biological life, I hope that a close reader of this book will see that it is not really about the placebo effect. It is about the interaction of biology and meaning in human life (which accounts for portions of what is usually called the placebo effect.) Human beings are uniquely "cultural animals." That phrase is, on its face, an oxymoron, a contradiction in terms. But close consideration shows that what we think, say, and know about the world can have a dramatic influence on our biology, as culture and biology overlap in powerful and important ways.

Part I

The meaning response

1 Healing and medical treatment

> Ever since [ship physician] Stephen Maturin had grown rich with their first prize [about 1790] he had constantly laid in great quantities of asafetida, castoreum and other substances, to make his medicines more revolting in taste, smell and texture than any others in the fleet; and he found it answered – his hardy patients *knew* with their entire beings that they were being physicked.
>
> Patrick O'Brian, *Master and Commander*, 1970

Even fictional doctors know that their patient's attitudes and understanding of medicine and treatment are a fundamental part of the healing process.

An ulcer trial

In the early 1990s, Dr. Frank Lanza, a gastroenterologist from Houston, Texas, led a large team of doctors in a test of a new drug for treating ulcers. Over 300 people participated in the trial which compared the effectiveness of a new drug known as lansoprazole (its trade name is "Prevacid") with another, older, drug for ulcers called ranitidine ("Zantac"). The people who entered this study were diagnosed with ulcers by having a procedure called an *endoscopy*. In this procedure, a fiber optic tube – an endoscope – is put down the patient's esophagus, and a technician examines the wall of the gut on a little television screen. In each case, only after the technician saw an ulcer in the patient's stomach was the person admitted to the study.

After this diagnosis, patients were randomly assigned to one of several groups. Some patients got Zantac (300 mg), some got Prevacid (15 mg), and no one knew who got which – neither the doctors nor the patients. After two weeks, and then another two weeks later, the patients came back to the hospital and got another endoscopy to see if the ulcers had healed. After two weeks, about 30% of patients in each group had healed ulcers. Two weeks later, things looked better. Two-thirds of the patients taking the old drug Zantac had healed ulcers, and 88% of those people taking the new drug, Prevacid, were better.

This is a classic example of the epitome of modern clinical medical research, what people routinely call the "gold standard" of medicine, the Randomized Controlled Trial (RCT); it is a way to provide highly objective and valuable information about what drugs work, and which ones work better than others.

Dr. Lanza and his colleagues wrote a (rather dense) scholarly article about their experiment and published it in one of the world's leading journals in this field, *The American Journal of Gastroenterology* (Lanza *et al.* 1994). There is quite a bit of discussion in the article about how the new drug might work and why it might heal up the ulcers (it has to do with restricting the amount of acid in the stomach, which seems to help create an environment where the ulcers can heal more easily). Their explanation seems plausible, and it may even account for why Prevacid works somewhat better than Zantac does.

But this experiment had another study group. Forty-four patients in the study did not receive either Zantac or Prevacid. They received what is called a "placebo," a pill which looked exactly like those the other patients took, but had no medicine in it at all; they took an "inert" pill. They had the same diagnosis, and were examined after two weeks, and again after two more weeks. And, like the other groups, no one knew which patients were taking the inert pills. What happened to them? After two weeks, about a third of the placebo patients were healed. After four weeks, just under half of them (nineteen of forty-four) were healed.

There's no discussion in Dr. Lanza's article about why *this* may have happened. What *did* happen to these people?

Whatever it was, it is very common. People have been aware for centuries that sick people, given a substance known to be inert by a doctor, frequently get better. This has, for good or ill, long been labeled the "placebo effect."

Placebo Domino: "I shall please the Lord"

The word "placebo" has a long and colorful history. In the early years of Christianity, communities of monks organized their lives with asceticism and discipline. In many communities, they developed regimens of set times for prayer and bible reading, often from the Psalms, throughout the day and night. A supplement to Vespers (often celebrated around 4:00 pm) was read and prayed when a member of the community had died. This "Office for the Dead" began with a reading of the ninth verse of Psalm 116, which, in the Latin Vulgate, says "Placebo Domino in regione vivorum," roughly translated as "I shall be pleasing to the Lord in the land of the living." "Placebo" is, in this context, usually translated as "I shall please."

Curiously, this is probably based on an inaccurate translation! The original Hebrew text has the word "eth-hal-lech" which means "I shall walk." (Note that "I shall walk with the Lord in the land of the living" makes a lot more sense than "I shall be pleasing to Him there.") When this was translated into Greek (probably sometime in the second century BCE), someone made a mistake and wrote "euarestaso", which means "I shall please." When St. Jerome translated the Bible into Latin about 500 years later, he, working from the Greek text, used the Latin word "placebo," meaning "I shall please" (Lasagna 1986).

Regardless of its origins, the term took on the somewhat different meaning in medieval English of a flatterer, sycophant, or parasite, someone out to please others with artifice rather than substance. In Chaucer's *Canterbury Tales*, written in the late fourteenth century, Chaucer tells the story of an old (two-faced) lecher named January who wants to marry a young girl; he discusses this plan with a man named Placebo, who advises him that whatever he wants to do is fine and wise, and who is he to tell January otherwise? By the early nineteenth century, this sense of the word had been adopted by physicians – a medical dictionary published in 1811 defined placebo as "an epithet given to any medicine adapted more to please than benefit the patient." One needn't know too much about the violence of medicine in 1811 – with its drastic purging and bleeding of patients (it is generally agreed by historians that George Washington was bled to death by his physicians in 1799) – to see that medical benefits were, at the time, not thought to come from anything that the patient might appreciate! And by the mid-nineteenth century it was common for people to refer to such treatments not only as "placebos" but as "*mere* placebos" – "just a divertissement to cheer the spirits, and assist the effect of the waters." By then, *water* was seen as a more effective medicine than a placebo.

In the twentieth century, as a result of the biological revolution which shook medicine to its roots, the term took on another meaning. Earlier, a placebo had been an inert substance given deliberately to please the patient (typically when the doctor didn't know what else to do). By the mid-twentieth century, it had taken on another, more complex meaning as people began to consider what was called a "second sort of placebo, the type which the doctor fancies to be an effective medicament but which later investigation proves to have been all along inert" (Houston 1938:1417–8). These drugs had been (perhaps for centuries) prescribed not to please patients, but to please doctors. And, of course, even though they were equally inert, they worked just as well as (or maybe better than) those physicians prescribed knowing them to be inert.

So, for centuries in the Western world, physicians have been aware of the fact that sick people get better after taking inert drugs. And, it should

be clear that they were then (and are now) somewhat ambivalent about this. Although the reasons are complex, it must seem odd to a person who has spent twenty years learning to be a physician, studying the hundreds of medications available, to find that patients get better just because they have been in a doctor's office for a few minutes.

Why sick people get well

There are, of course, many reasons why someone might get well after getting sick. Certainly, modern pharmaceutical drugs often help the sick get better, experience less pain, heal more quickly from a variety of conditions, and, if they don't actually help heal diseases (like cold "remedies"), they often make such unhappy experiences more comfortable.

But other things happen as well. For ordinarily healthy people, most sicknesses are "self-limiting," which is a fancy way of saying that they go away by themselves. Colds and headaches are the examples with which we are most familiar. Many of the upsets of babies and small children are self-limiting; this is the origin of what must be the most common "prescription" of the pediatrician – "Call me again in the morning" – by which time the problem is usually gone. And it has long been said that, left to itself, a cold will last about a week and a half, but when treated with all the armamentarium of modern medicine will last only about ten days.

A more complicated version of this goes by the unpleasant name "regression to the mean." The idea here is that chronic diseases (ones that don't ordinarily go away "by themselves") regularly wax and wane. Such conditions get worse for a while, then get better for a while, and then worse again. And, the argument goes (although I don't think I have ever seen anyone really prove it), people tend to seek medical care when their conditions are severe. The disease is likely to start getting better by itself (at least for a while) just as the patient shows up in the doctor's office.[1] While I don't think this happens often, there clearly are situations where regression is a real factor. If people are selected for a study based on their displaying an extreme condition – like very high blood pressure, or very high levels of cholesterol – there is good reason to believe that, after some period of time, their extreme measurement will be less extreme simply because the body seeks homeostasis.

Can these factors – the self-limiting character of many illnesses and "regression to the mean" – account for the placebo effect? Certainly not.

[1] Consider an alternate hypothesis for which there is probably just about as much data (that is, none). The patient tends to call his doctor for an appointment at the time when his condition is worst; under managed care, he will get an appointment in about six weeks, by which time he will probably be much better.