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PHARMACEUTICAL ANTHROPOLOGY.

Since the end of World War II, Western pharmaceuticals have gained popularity everywhere mainly because of the successful use of penicillin and its spectacular effect. They often represent a large part of health expenses in developing countries. In 1981, for instance, the people of Bangladesh spent nearly $75 million on Western pharmaceuticals. This was about 60 percent of all health expenses. However, 70 percent of these drugs were useless from a therapeutic point of view. As a result of lack of knowledge and inadequate control, Western pharmaceuticals are often misused and become a health hazard.

The idea that some medicines have an intrinsic power is widespread. Nevertheless, different cultures may have a distinct conception of the nature of that power. The notions of potency of a medicine and the expectations about its functioning are culturally defined and may vary greatly from one culture to another. Without the adequate accompanying knowledge, the borrowing of and self-medication with medicines from other cultures may be harmful. Western pharmaceuticals are often integrated not only into indigenous healing processes but into cultural belief systems as well. They are viewed through local concepts of healing and are often attributed special power and efficacy because they come from far away, arrive in modern packages, and are applied by nontraditional means, such as injections and capsules. They sometimes even become indigenized; they are used in a given community as if they were authentic local products. In such cases, the effects of Western pharmaceuticals are described with traditional concepts of efficacy. In certain cultures, for example, diseases as well as medicines are classified as "cold" or "hot." A cold medicine is viewed as appropriate to treat a hot disease and vice versa. Indigenized medicines are used in culture-specific way, such as powdered and sprinkled on wounds or dissolved in herbal teas. They are sold in small neighborhood stores; they are given local names or, conversely, their names are given to traditional medicines. This process of indigenization is called *cultural reinterpretation.*

Cultural reinterpretation of Western medicines can be found in several countries. In the Philippines, Diatabs (loperamide hydrocloride) and Polymagma (attapulgite), two types of antidiarrheals, have been on the market there for decades and they are very popular. They are sold in small stores and are very well known. The Philippines consider them good for hardening and giving shape to stools. These are the same properties that they attribute to fruits such as star-apple and guava, with which they traditionally treat diarrhea.

In Cameroon, tetracycline capsules are easily available in markets, small shops, and from peddlers. This antibiotic is used in a widespread fashion, as it is believed to be efficient for the treatment of any disease. It has become so popular that it has been given the local name of *folkolo,* which means "wound healer," probably because of the common practice of sprinkling the content of the capsules into a wound.

In Brazil, the antibiotic *Terramicina* (Terramycin, oxytetracycline) is widely available at a low cost, and it has been on the market for many years. This medicine has also been indigenized. It is viewed as an intestinal stabilizer and its popular use is a single dose for intestinal ailments. It is also very appreciated for the treatment of wounds. People do not only take it orally to prevent infection, but, as the traditional method of herbal treatments dictates, they mix the contents of the capsule together with pork fat and apply it locally. This antibiotic is so popular that Brazilians

have given the name of *terramicina de mato* ("herbal Terramycin") to a local herbal medicine used traditionally for the same purpose.

Traditional healers may also prescribe Western pharmaceuticals. In Ecuador, it was observed that while treating a man suffering from *llaqui*, a culturally bound syndrome similar to depression and anxiety, a Quichua healer prescribed him a liter of lemonade in which several aspirin tablets (around ten 300-mg tablets) were dissolved. The patient had to drink it at once, entirely. No studies have yet been done to verify whether it is a common practice. In Sri Lanka, Ayurvedic healers frequently prescribe Western pharmaceuticals. They say they do so because patients insist on receiving the most potent medicines.

Westerners as well borrow medicines from cultures all around the world without the proper traditional knowledge and subsequently misuse them. Kava-kava has been used traditionally by Pacific Islanders for centuries. They take it as a tranquilizing tea, in low concentration. In the last few years, it has become very popular in the United States and Canada. It can be said that it has been indigenized to the Western world. Because it is a plant, people view it as a natural and harmless tranquilizer. Suiting cultural preferences, the kava-kava is sold in capsules of increasing dosage. Misuse and overuse have led to several cases of hepatic intoxication, and recently the government of Canada has banned this product.

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PHYSICS AND ASTRONOMY.

Throughout much of the twentieth century, efforts to understand the nature of scientific knowledge—efforts undertaken by philosophers, historians, and some sociologists of science—have singled out physics and astronomy as paradigmatic scientific fields. They are paradigmatic in two senses: as ideal and as model. That is, physics and astronomy have been taken to represent scientific knowledge at its best and, at the same time, to set a standard for how science ought to be done. If one reads the literature in history and philosophy of science before 1980, one finds that many of the cases, examples, and historical breakthrough moments of science that are mentioned or explored come from either astronomy or physics. From the discussions about truth and falsification among the early twentieth-century philosophers of science such as Karl Popper and Rudolph Carnap, to Thomas Kuhn's demonstration of the alternating continuities and discontinuities in scientific practices, to the critical analysis of the explanatory powers of the laws of nature in Nancy Cartwright's work, physics and astronomy provide the illustrations—sometimes critiqued, often admired—of how scientific thinking is thought to work.

Obviously, physics and astronomy have contributed enormously to our understanding of the natural world, not only providing a common set of explanations but, thereby, shaping our material, social, and natural environment. How fast do things fall? How do galaxies form? What is the shape of the universe? When and how did the earth develop? How does matter hold together? What is going on in the sun? What explains the attraction and repulsion between inanimate bodies? What is matter and how does it behave? Increasingly, such questions are the subject of large-scale, intricate, experimental research programs that require hundreds of researchers and millions of dollars to complete. Many of them continue to be the subject of debate. Others have—at least for the time being—been answered to a such a degree of consensus that they set the agenda for further research or serve as working hypotheses. Yet others have been answered conclusively: They have been shown to work in applications varying from the flight of airplanes to the magnification of objects in tele-