LETTER FROM NEW DELHI

Folklore to pharmacy

A few native Indian drugs turn out to be useful medical tools. But screening thousands of plants may be a waste of time

Throughout India practitioners of the traditional Hindu arts of healing compete successfully for patients with doctors trained in modern medicine. From ancient pharmacopeias, rich storehouses of botanical information, they prescribe medicines of ground roots or crushed seeds. Sometimes their patients get better.

Occasionally, scientists discover valuable drugs from traditional Ayurvedic cures, and when this happens India's official emphasis on the study and preservation of ancient systems takes on renewed vigor.

In 1958, from a poisonous plant with brilliant yellow blossoms—known in Sanskrit as the horse killer—Indian scientists isolated a new heart drug. Peela kaner or *Thevetia nereifolio juss,* which grows wild in the arid Indian plains, has been used since 1000 B.C. for everything from leprosy and rheumatism to dropsy and fever. Dr. T. R. Seshadri of the University of Delhi discovered that its seeds yield a white crystalline powder called peruvoside that acts within 20 minutes to restore normal contractions in a failing heart.

Their work attracted little attention, however, until the German pharmaceutical industry showed interest in its commercial development. At that point the Indian Council of Medical Research stepped into the picture, initiating extensive animal and human trials.

By 1965 researchers at the All India Institute of Medical Sciences, New Delhi, and the Government-sponsored Central Drug Research Institute, Lucknow, had preliminary evidence that peruvoside is as potent a cardiac agent as ouabain, the world's standard measure for heart drugs, that its cumulative toxicity is lower, that it is more readily absorbed by the body and that it is effective in capsule form. Studies during the last three years at the AIIMS and the Safdarjung and Lady Hardinge Hospitals in New Delhi, confirmed early results, showing in addition that peruvoside's only side effects are mild nausea and vomiting, common to similar cardiac drugs.

From India's point of view, perhaps the greatest advantage of peruvoside over other drugs for congestive heart failure lies in its potential for large-scale, inexpensive manufacturing within the country, obviating the need to buy heart drugs abroad. This takes substantial amounts of scarce foreign exchange. Optimistically, Dr. Seshadri suggests, "peruvoside may even turn out to be a valuable foreign exchange earner."

Less optimistically, Dr. Seshadri criticizes the Indian bureaucratic system, which forces scientists to seek foreign outlets for their research. In spite of India's avowed policy stressing utilization of indigenous resources, it is only now, 10 years later, that peruvoside is gaining significant recognition in the country—just at the time the Germans are close to releasing it to European markets. India's drug-makers apparently have made no strong move to exploit this drug though scientists familiar with it claim it is both inexpensive and easy to produce.

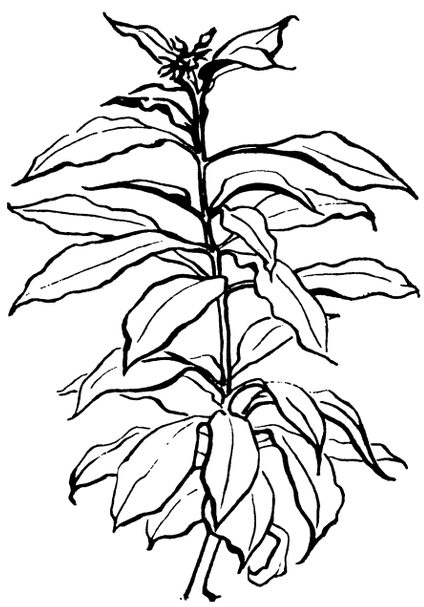
In view of the Indian drug industry's widely criticized inability to compete effectively with foreign manufacturers even within India (it is only a $24 million a year operation), coupled with what pharmacologists consider on the whole to be inauspicious results, the country's national program of indigenous drug research is held in low esteem by the scientific community.

Its greatest support comes from politicians who either subscribe themselves to ancient medical systems or have constituents who do and are therefore quick to push scientific study of these systems because of their tremendous emotional appeal.

Asserting the Government's position, Prime Minister Indira Gandhi charges scientists with neglect of ancient resources: "We ignore the great medical history we have inherited. We do not pay enough attention to our indigenous plants."

But the story of peruvoside, scientists at the Central Drug Research Institute and the All India Institute of Medical Sciences maintain, like the story of *Rauwolfia serpentina* from which reserpine comes, is an exception to the rule; it in no way justifies the time and money spent screening hundreds of plants for their efficacy in some 65 diseases.

The CDRI in 17 years has screened some 1,100 plants, 800 in the last four years, and has not found a single marketable product. One prominent CDRI scientist—who could lose his job in the present atmosphere if he were identified—thinks plant studies are worthwhile when there is some reason to expect results. But in view of the higher rate of success with synthetic drug studies, he says, "The systematic screening of any plant that comes along is essentially a tedious waste of time. But if we stopped doing it, the politicians wouldn't like it."



Rauwolfia: an exception, not a rule.

Dr. Ram B. Arora, chief of pharmacology at the AIIMS and one of the researchers who studied peruvoside, expresses similar skepticism, calling indigenous plant research "worth pursuing but certainly not fruitful." But he also points out that the Soviet Union has a major center for plant-drug work in Moscow and 36 to 38 percent of its pharmacopeia contains drugs of plant origin. "They must be getting somewhere," he says.

Recently the two countries established an Indo-Soviet Joint Committee for Scientific Cooperation which has approved a symposium on indigenous drug studies to be held in Tashkent in September.

In the United States, the healing-plant research is still in its infancy—or still overcoming the bad name that 19th century quackery gave it. When medical botanists discuss the subject, they cite discoveries in Africa and South America, rather than the United States.

Barbara J. Culliton