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Uncommon trajectories: steroid hormones, Mexican peasants, and the search for a wild yam

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Abstract

This article analyzes how evolving pharmaceutical technology, chemical advances, and world politics created the need for an abundant and cheap supply of steroids, and how decisions made in faraway laboratories ultimately determined that a Mexican yam, barbasco, was the best possible raw material. Following this discovery, this article explores how barbasco's exploitation impacted on the Mexican countryside and specifically the men and women hired to gather wild yams. In analyzing, for example, the peasant organizations that emerged, the use of chemical terms by barely literate peasants, and the Mexican government's political strategy to control rural unrest by controlling barbasco production one begins to understand the unexpected consequences of the global search for medicinal plants. In this particular case, the merging of science and peasant life reshuffled social hierarchies in the countryside, granted monetary value to an erstwhile 'weed', and gave a novel reinterpretation to laboratory knowledge and its (social) uses.

Keywords: Hormones; Mexico; Bioprospecting; Dioscorea; Barbasco; Pharmaceuticals

> 1934: 'The collection, selling and transport of urine, the search for remains from slaughterhouses and the ordering of a whale were all aimed at the same goal: the production of sex hormones. The making of sex hormones into material realities required the availability of tons of ovaries and testes, as well as millions of liters of urine'.[1]
>
> Nelly Oudshoorn

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[1] Oudshoorn (1994), p. 65.

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> 1951: 'The cortisone production problem was solved . . . it should be noted that the leader in the race was a chemical manufacturer in presumably backward Mexico'.[2]
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> Harper's Magazine

> If we are not able to follow up our participant-observation studies far enough to take in questions outside the laboratory, we are at great risk of falling back into the so called 'internalist' vision of science.[3]
>
> Bruno Latour

1. Introduction

Today the hormones estrogen and progesterone are 'the most widely used drugs in the *history* of medicine':[4] millions of women take hormonal pills, and a hormonal model is widely used to explain the human body. Surprisingly, however, the concept of hormones is, in historical terms, quite recent. The term was not coined until 1905 and it would take nearly three decades before hormones could be mass produced.[5] By the twentieth century scientists had transformed sex hormones from imagined 'secretions' into commodities that could be purchased and manipulated. But before hormones could be neatly boxed and packaged, scientists needed to leave the confines of their laboratories and look for sources, first for organs, then urine, and finally tubers. Ironically, it would be a little known laboratory in Mexico, a country without a domestic chemical research industry of its own, that would eventually solve the supply problem. Indeed, the global demand for steroid hormones was met with the help of the most uncommon of participants, Mexican peasants. This article will analyze this obscure chapter in steroid hormone history and its impact on the history of medicine and of Mexico.

Specifically, this article analyzes how evolving pharmaceutical technology, chemical advances, and world politics created the need for an abundant and cheap supply of steroids, and how decisions made in faraway laboratories ultimately determined that a Mexican yam, *barbasco*, was the best option for raw material. To understand this story within the larger context of its eventual impact on the Mexican countryside, we need to understand what enables the transformation of a local plant from a 'weed' into what was arguably some of the twentieth century's most valuable drugs. By this I do not mean the bit by bit laboratory and marketing process, but rather the historical, political, medical, and social catalysts which urged the scientific community to search for and find barbasco.

Of the various actors responsible for the transformation of the root from plant to medicine, an essential link was the scientists, in particular Russell Marker, who carried their knowledge from American and European laboratories to the places where barbasco grew. But in an amazing reinterpretation of events, in 1975 it was Mexican peasants who claimed that they and not foreign scientists were the ones who controlled the production of hormones, or rather, the raw material needed to produce synthetic hormones. Remarkably, these individuals, who in the eyes of laboratory researcher's were the farthest removed

[2] Engle (1950).
[3] Latour (1983), pp. 141–170.
[4] Oudshoorn (1994), p. 9; Emphasis added.
[5] Supposedly a friend of the endocrinologist Ernest Starling first used the term to describe the chemical messengers secreted in the glands but producing effects elsewhere; see Vaughan (1970), p. 8.