

November 30, 1966

Mr. A. C. Pabst, Manager  
Hygiene and Toxicology  
Medical Department  
Mobil Oil Corporation  
150 East 42nd Street  
New York, New York 10017

Dear Art:

The prospect which is revealed by your letter and the attachments is an interesting and promising one. It seems probable that some very useful information could be obtained by pursuing this prospect.

There are several matters that would have to be looked into carefully in order to establish the facts concerning the opportunities that may exist for the contamination of a "natural" environment with lead from artificial sources. This, I think will require some expert investigation, and some very close and comprehensive observation, as well, of the day to day activities of the native people.

One question that comes up at once is the lead content of the atmosphere, and the occurrence, direction and strength of air currents that may carry lead from artificial sources such as highways and industrial areas. It may not be possible to get much information of this type, but some sampling at selected, strategic points might be feasible.

Another question is that of the total armamentarium of tools in the hands of any and all of the people, as weaponry, implements of agriculture, animal husbandry and capture (hunting, fishing, etc.) equipment of the household, if any, as used in the gathering and storage and preparation of food of all kinds (such as, for example, cans, barrels, etc. scavenged from dump and transportation facilities). Included in the survey designed to obtain all positive and negative information of the type indicated above, would be decorative or cosmetic preparations used on hair, skin, nails, etc.

Samples of soil, water and vegetation, and articles of food of animal and vegetable origin, in their natural, raw, stored and prepared (for eating) states, should be obtained, in conjunction with careful, leisurely but complete observation of the activities of the people.

Samples of feces, composite daily food samples (this may not be feasible), urine (large volume and spot samples, the technique of collecting to be outlined in detail), and blood, should be obtained.

Another matter of more than a little importance is that of a history and physical examination. If any kind of communication is possible, a physician should obtain a record of the history of the individuals who provide samples of feces, urine and blood. The sheets which we have used in the past in an investigation of this

type indicate the type of questions that can be asked, some of which might stimulate answers and lead to interesting observations or circumstances. The examinations could hardly be comprehensive, but a number of matters will be of special interest, such as certain physical measurements - height, weight, state of musculature, and nutrition, condition of eyes, ears, teeth, hair, nails, bodily mutilations, ornaments, clotting, injuries and stigmata of disease (scars, anomalies, deformities).

I think I should comment on certain aspects of this possible investigation, by way of indicating some of the shortcomings of presently available information of this type. The issue here is the matter of the exposure to lead which was unavoidable in a primitive representation of the human environment. To what extent has the absorption of lead, within certain well-defined quantitative limits, been an unavoidable feature of human life on this planet from the earliest time? This means that one must be able to demonstrate the absence of every artificial factor from the environment of a population under investigation. Otherwise what one is doing is merely collecting more data on the present state of man, in this regard. Through the ages man has been digging lead ores out of the earth, especially out of its depths, and has been scattering lead about in a variety of forms on the surface of the earth and into its atmosphere. Is there a place on the earth that has not been so contaminated? If mineral and processed lead has been carried to all parts of the planet by streams of water and air, or by lead bearing commodities of one type or another, we shall never be able to determine the status of primitive man. But if, on the contrary, there are places and peoples that have been isolated wholly or largely from the spread of lead throughout the rest of the world, we can learn the facts in this regard. Nothing else is worthy of further effort, if the question at issue is to be answered. Something less than valid information will leave us just where we now are - namely, that lead in man is wholly or largely an expression of the changes in the human environment wrought by man's activities. I would waste a dollar, or risk my own or any other man's life or health, on an investigation of this type, unless it appears to be feasible to carry out a fairly comprehensive investigation that will answer the basic questions. We have reams of data concerning populations in various parts of the present earth. These are very useful, and in my view, they have answered about all of the pertinent questions, except the one which queries whether the general order of the content of lead in the "normal" human body, as we have found it, is fairly comparable to that which characterized primitive man. Patterson says it is of a totally different order of magnitude, for reasons which I believe to be spurious, and perhaps (probably, I think) he would continue to say so, even if everyone else in the world was convinced to the contrary. We cannot combat him, however, or even convince many others, by merely bringing in more data on populations whose environments have not been explored and charted realistically. The time for inferences has passed; only fully elucidated factors can lead to valid conclusions.

I trust that what I have said above will not prove to discourage further consideration of this situation. Let me assure you that I am prepared to do everything I can to encourage and assist your people (or any others) in a further approach to an investigation.

Sincerely yours,

Robert A. Kehoe, M.D.  
Professor Emeritus of  
Occupational Medicine

RAK:wp

KE 0012392

# Mobil Oil Corporation

150 EAST 42ND STREET  
NEW YORK, NEW YORK 10017

November 10, 1966

Robert A. Kehoe, M.D.  
Kettering Laboratory  
College of Medicine  
Cincinnati, Ohio

Dear Bob:

This is in reference to our telephone conversation this morning regarding the Motilone Indians and the exciting possibility that this tribe of people living under practically Stone Age conditions might supply useful scientific information on the blood lead levels on a group having no exposure to modern civilization.

The Columbian Petroleum Company (Colpet) is an exploration and producing company jointly owned by Texaco and ourselves and attached are two write-ups on the Motilone Indians which appeared in our respective company publications approximately three years ago. The matter recently assumed importance when Dr. Landinez visited us and described the progress he has made in cultivating a friendship with these Indians. As mentioned to you, he has been successful in taking blood samples. In fact, the Indians sort of welcome it because they believe it is removing evil spirits, and in such blood samples, Dr. Landinez found cholesterol levels in the 80's.

After you have reviewed the attachments, we would appreciate it if you would telephone or write us listing what you consider the necessary requisites in a survey of blood lead levels such as, environmental samples, food samples, etc. We in turn will contact Dr. Landinez and obtain full information in this respect.

So far, discussions on this idea have been between the Texaco Medical Department and our Medical Department and we do not believe management of either company has been approached with this project in mind. At this stage, we would welcome your comments on the merits and scientific values of such a study which would help us promote it with our management, if you believe this to be the case.

Very truly yours,



A. C. Pabst, Manager  
Hygiene and Toxicology  
Medical Department

ACP:sj  
Attachments

**N14055.01**

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## IN COLOMBIA GETTING TO KNOW YOU

**F**OR OVER 40 years Colombians have been trying to make friendly contact with the Motilon Indians. This primitive warlike South American tribe—estimated to number about 2,500—is still living under Stone Age conditions. The tribe is near the main field of the Colombian Petroleum Company (a Texaco affiliate) in the Catatumbo area of Colombia near the Venezuelan border. Some Motilon Indians have been attracted to a Christian mission on the Venezuelan side of the border, but the members of the tribe have never allowed a non-Indian to mingle with them or visit their communal dwelling places—huge oblong thatched huts.

But a significant breakthrough was made this year when a daring helicopter pilot, flying for a Venezuelan petroleum company, set his craft down in a clearing next to one of the Motilon huts. No Indians were in sight so he left gifts and departed. Returning several days later he received friendly greetings.

This meeting led to the first peaceful contact between the Motilon Indians and a group from the Colombian Petroleum Company when Dr. Alfredo Landínez S., Medical Director, was called upon to examine the ailing daughter of the Motilon chief. This historic meeting took place at Rio de Oro, just 15 minutes by air from Tibu in the Catatumbo area.

The nearly naked Indians were led by a chief of the Goajiro tribe who spoke a little Spanish. The others—all members of the Motilon tribe—were Chief Astrogora, his wife Abradara, their 10-month-old daughter Achibara, and two more Indians, who spoke no Spanish at all. They did, however, repeat the Spanish greeting, slurring the last letter so that it sounded like “Buenos diassss.”

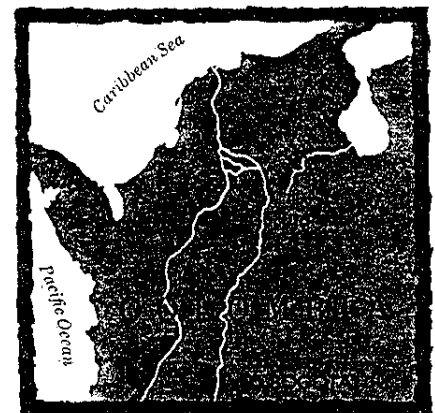
The Indians appeared smiling but somewhat mistrustful when Dr. Landínez examined Achibara. Later, however, when invited to take a short plane ride, they accepted without fear and indicated that they wanted to fly over their huts.

Pedro Rodríguez and Victor H. González of the Industrial Relations Department of the Texas Petroleum Company, a Texaco subsidiary, in Bogotá, Colombia, were on a field trip to the Catatumbo area when this meeting took place and they were invited to go along. Señor González apparently made a hit with one of the tribesmen who approached him and uttered a dry “um,” then handed Victor his weapons: a bow, a harpoon, and three arrows.

When the meeting was over the Indians said their farewell “adiossss” cheerfully enough. Asked when they would be back, the chief replied, sharply, “Never.”

Only time will tell whether the chief's pessimistic reply will be the ultimate outcome of this meeting, or whether the Motilon tribe has taken its first steps out of the Stone Age. ★

*Below: Chief Astrogora of the Motilon tribe watches as Dr. Alfredo Landínez S., Medical Director of the Colombian Petroleum Company, examines his infant daughter, Achibara. Her mother's back serves as the examination table. Bottom: A portion of map showing Catatumbo area of Colombia, home of the Motilon.*

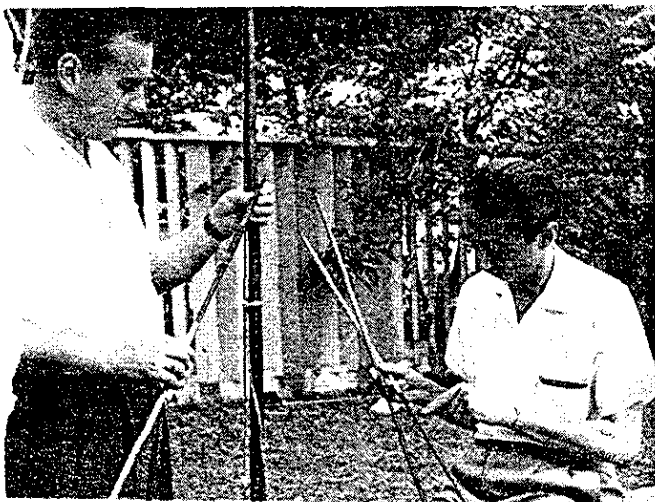




*Left: These four young warriors, pictured with Colombian Petroleum Company personnel, were members of the first party of Motilon Indians ever to make a peaceful visit to Colpet's Rio de Oro base.*



*Above: Dr. Landínez holds Achibara while her mother, Abradara, wife of the Motilon chief, boards the Colpet plane. Left: Victor H. González, standing, and Pedro Rodríguez, examine the Motilon weapons presented to Victor by a primitive warrior.*



C. Pabst, Manager  
 Medical Department  
 Mobil Oil Corporation  
 150 East 43rd Street  
 New York, New York 10017

Dear Art:

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There are several matters that would have to be looked into carefully in order to determine the feasibility of the opportunities that may exist for the contamination



The Motilón infant in the arms of Colpet's Dr. Landinez doesn't seem as happy about being examined as the tribesman above. Then again, the smiling Indian holds the Motilón's best friend — his deadly bow.

## A Day with the Motilones

# Furtive Indians Slip from Jungle For 'Office Call' on Colpet Medic

RÍO DE ORO, COLOMBIA — After 25 years of extracting arrows from the victims of Colombia's wild Motilón Indians, Dr. Alfredo Landinez finally met — and examined — some of the furtive jungle marksmen.

He prescribed aspirin.

Dr. Landinez is medical director of Colombian Petroleum Company (Colpet), jointly owned by Mobil and Texaco.

The strange encounter occurred last March deep within the dense terrain of the Barco Concession in Northern Colombia. It represents what is perhaps the most significant breakthrough in relations with the hostile tribes since oil operations first began on the concession 40 years ago.

Since then, at least 40 men have been killed, and another 100 wounded, by the ingeniously barbed arrows of the Motilones.

Numerous attempts by Capuchin priests, ethnologists, and oil company personnel have been made to attract and befriend the primitive jungle dwellers. Colpet people had on several occasions made air drops of salt, bread, yucca, clothing, and machetes near the Motilón huts.

But none of these overtures proved very fruitful till early this year when a helicopter pilot for a Venezuelan oil company landed his craft close by a Motilón dwelling and left a cache of gifts at the foot of a tree.

### The Colpet "Magician"

A few days later, when the pilot returned, he was greeted so warmly by the Indians that he was able to arrange for a meeting between a party of them and the "magician" of Colpet — Dr. Landinez.

On March 13, five Motilón men and one woman with her five-month-old child emerged from the jungle and made their way to Colpet's Río de Oro base, where a health station is maintained.

On hand to meet the Indians, whose arrows he has become expert at extracting, was Dr. Landinez. He reported the results of this encounter in a recent letter to Socony Mobil's Medical Department in New York.

Using only a stethoscope and a footlamp — he said he feared any more complicated instruments would arouse their suspicions — he gave each of the natives a lengthy clinical examination.

"The natural apprehension of each of them was extreme," Dr.



Four young Motilones pose with Colpet personnel at company's Río de Oro base. Their amicable visit represented breakthrough after 40 years of armed hostilities.

Landinez reports. "Before climbing onto the examination table, they looked carefully beneath it, and then they lifted up the mattress to be sure that nothing was there."

"Then they sat down and lay back slowly, as if they were preparing to jump up at any moment."

Their general health was found to be good, though all the Indians examined complained of not being able to sleep due to coughing, earaches, violent headaches and abdominal cramps.

For the time being, Dr. Landinez gave the party a generous supply of the 20th Century's most popular balm — aspirin. He also provided them with other symptomatic medicines such as cough syrup, analgesic drops for the ears, and antispasmodics for abdominal colic.

The worst plague of Motilón life is hunger. They will eat anything — worms, lice, snakes, even the fearsome *el tigre*. In periods of great privation, they have been known to practice cannibalism.

Their agricultural skills are practically non-existent. Dr. Landinez hopes that, with further contact, "we will be able to develop better clinical activities, and give them agricultural elements such as seeds, and equipment such as machetes, axes, hoes, and picks."

Toward the day's end, the party of Motilones slipped back into the jungles as quietly as they had ar-

rived. It would take them five nights to reach their native huts.

While the language barrier could hardly be described as broken, Dr. Landinez said that the Indians had learned at least two U. S. words. One was "Coca-Cola," a drink they'd tasted that day at the base for the first time in their lives.

The other word? "Okay."

## A Spearhead in Medicine

Dr. Alfredo Landinez, a Colombian citizen, has come to grips with a host of medical problems ranging from the arrow wounds to less exotic ailments such as appendicitis and the common cold.

Unlike company doctors in the United States, who are primarily concerned with diagnostic and preventive medicine, oil company medics provide a full range of care in remote corners of the world. In many areas, if companies didn't provide such treatment, there wouldn't be any.

Mobil has more than 300 medical people scattered over 20 nations.

Dr. Landinez himself began treating Colpet people 25 years ago, when he trudged after pipeline workers cutting their

way into the jungle. His equipment: a portable "hospital" strapped to the backs of eight straining burros.

Today he directs a modern, 80-bed hospital maintained by the company at its field headquarters in Tibú.

His experience in extracting the spear-like arrows of the Motilones is probably unmatched by anyone in the world. The arrows are four-foot shafts, with intricate barbs that make them critically difficult to remove from a victim.

To do this job, Dr. Landinez has evolved a plastic tube that slides over the arrow and envelops the barbs to permit less harmful withdrawal.

Since his face-to-face meeting with the Motilones, he hopes he won't need it any more.