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MEDICINE IN INDIA

JOHN K. ORMOND*

The disease picture of the people of India varies according to religion, latitude, altitude, rainfall, economic state, and literacy. A few facts will illustrate this: penile cancer is very common among Hindus but seldom seen in Moslems; "stomach" ulcer is frequent in the south and rare in the north while gall-bladder disease is common in the north and rarely seen in the south; mountain diarrhoea occurs in the hill country; malnutrition, leprosy, and tuberculosis are largely dependent on economic conditions.

The picture, in the last twenty years, is changing for the better. The change is due to the introduction of vaccines and antibiotics in addition to governmental campaigns for improved sanitation and against certain insects. Malaria is no longer universal. Plague is unknown, and cholera, while endemic, no longer comes in epidemic proportions. Typhoid has become rarer and typhus is not often seen. The tickborne diseases occur less frequently.

Roughly, the country can be divided into six regions: (1) the mountainous area of the north—the Himalaya region. (2) the great and fertile alluvial plain of the Ganges and the Indus which lies just south of these mountains. This region was the seat of old and resplendent empires, and the target of invasion from the north and west since the time of Alexander and before. (3) an old and partly leveled hill country running east and west across the upper part of the peninsula. This is the jungle area of Kipling's Mowgli stories. (4) the Deccan Plateau—a great area made of horizontal beds of lava, dissected into hills and plains. This plateau averages about two thousand feet above sea level. (5) the lower peninsula composed of old eroded Archaean mountains with their alluvial plains and valleys. (6) the coastal plain at or near sea level separated from the inland plateau by a range of hills—the Ghats. Of these divisions, the western and southern coastal plains and the plain of the Ganges are the most fertile and most thickly populated.

Through all these regions diversity of tongues is great. There is, however, a broad underlying unity of culture, modified somewhat by religion, climate, economic differences, and by the degree to which they have been exposed to the outside—especially to the western influences. Ninety percent, or nearly seven hundred thousand, of the people live in villages. The villages range in size from a few householders to communities of ten or twelve thousand inhabitants.

Everywhere, the bullock is the beast of burden, drawing the carts and ploughs, and hauling water from the wells for irrigation. Many little donkeys are seen. Horses are less common and usually small. In the north, camels are often seen ploughing, or walking the monotonous circle of the Persian pump, or drawing carts on the road.

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The water buffalo is the chief milk animal. However, milk goats are not uncommon, and in driving about the country, many herds of cows are met on the road. These animals are usually thin and poor, and for the most part with dry udders. Flocks of sheep and goats are everywhere. These animals are apparently grown more for their wool than for their flesh, for the Hindus are vegetarians. However, more and more eggs, fish and fowl are eaten when available. The Moslems eat meat when they can afford it. I was surprised to find some pigs scattered about the country, and I am informed that some of the outcastes and those of the lower caste eat pork.

Most of the villagers live in dismal, dark and insubstantial dwellings. In the south these are built of matting made from woven palm or reed. In the north sundried bricks or adobe is used. The wealthy use stone when it is available or fired brick if it is not. Our city of Miraj is largely built of black basalt—a stone which underlies the whole area.

The native diet is protein-poor. In the north the staple is wheat, while in the far south it is rice and tapioca. In our region a maize-like grain is grown. Rice is grown and eaten everywhere. Sugar cane is seen in all parts of the country. Dahl, a legume, seems to be the chief source of protein. The food is usually highly seasoned and hot. Chili is freely used especially in the south. It is said that the farther south one goes the hotter the food, and this may have something to do with the prevalence of "stomach" ulcers in that part of the country.

The village water supply is usually from wells which are shallow and exposed to surface drainage. There is no sewage system. Animals (goats, dogs, cows and donkeys) wander at will. Traditionally, the place for defecation is the fields; however, to most villagers fields are not convenient, and adults use any vacant land. Children merely go outside the house. Our city which has a population of 40,000 has no sewage system. One open space, for obvious reasons, is known as the "Rose Garden." The sanitary problem is easily appreciated and is complicated by the level of education and the language situation.

There are eight *major* languages, but that number can be doubled if those of considerable importance are counted. There are over two hundred dialects. In general the languages of the north are derived from the Sanscrit, and those of the south are Dravidian in origin. This diversity of tongues makes intercommunication difficult. English, though known to only two percent of the people, is the only language spoken in all parts of the country. The government has decreed that Hindi, a Sanscrit language, is to be the national tongue. However, this is meeting with much opposition in the south. Over eighty-five percent of the people are illiterate.

Before the British era, some parts of the country had been subject to periodic unrelievable famines, to the unchecked ravages of cholera, plague, malaria and other diseases. The British either built or stimulated the building of irrigation systems. They built railroads and highways. At the present no part of the country is out of reach of relief from famine.

The British introduced scientific medicine. They founded or stimulated the founding of universities in the larger cities where science, engineering, medicine and law were taught in English. The English language became the language of government, of railways, of the post office, and in any other field where rapid and free intercommunication was desirable or necessary. This meant that a knowledge of English was a prerequisite to the study of medicine. It also opened the great store of English textbooks to the student and freed him from being confined to his own language district in obtaining his education.

Government hospitals were built, institutions for the care and treatment of those infected with tuberculosis and leprosy were established. A system of village dispensaries with regional or district medical and surgical officers was instituted. Since the departure of the British, the Indian government, national and state, has built more hospitals and expanded the program greatly. Some new medical schools with excellent equipment have been built; however, the need for primary education is so vast that funds for medical education are limited.

Christian missions are an important part of the medical picture. There are three Christian medical schools as well as numerous hospitals averaging twenty-five to one hundred and fifty beds. Many of these hospitals have training schools for nurses. The Christians also have many village dispensaries, some of which are managed by doctors and others by nurses. The dispensary may be connected with a mission hospital or medical school. It may be without formal association with any institution, yet have cordial relations with the nearby mission or government hospital. In general, I believe, the mission institutions penetrate a little deeper than those of the government into the mass of the population. The government schools are in the large cities, while the three mission schools are in the smaller cities of Vellore, Ludhiana and Miraj. Most of the hospitals are in the smaller cities and some in villages, like those at Kutchwa and Mungeli which are well known.

There are twenty medical schools and colleges in India. About one thousand students graduate from these schools each year. Obviously, in a country of three hundred and fifty million this number cannot meet the need. It is estimated that there is one doctor to about forty-five thousand people. The same is true of nurses. Most of the graduates of the larger schools settle in the cities where the demand for their services is great, the monetary rewards larger, and living conditions for them and their families more satisfactory. Until recently a few of the schools, such as Miraj, did not prepare graduates for the M. B. B. S. degree which corresponds to our M.D. However, the government licensed them to practice, and the majority settled in smaller cities or larger villages. They proved a useful group. At the present time the government has ruled that all schools shall upgrade and prepare to give full training or close.

It can easily be seen that there is a large medical vacuum which is filled in various ways.

Besides the system of western medicine there are indigenous systems. One is Ayurvedic medicine. This is apparently Persian in origin and is embalmed in the Vedas. It has its own pharmacopeia of native drugs and herbs. It is a strange

mixture of religion, superstition, magic and empiricism. Many of the drugs are undoubtedly of some efficacy, especially those for the treatment of the prevalent dysenteries and worm diseases. They are cheaper, though less effective, than most western drugs.

Another system, Unani, is Greek medicine introduced by the Arabs. It might be likened to a fossil of the base on which western medicine developed.

There are schools where these systems are taught, and along with the extreme nationalism and reaction against anything western, which is prevalent in India today, there is a movement to decry western medicine and to emphasize the native systems. This has resulted in some of the state schools having departments of both systems. For instance, in Mysore the government medical school has two hospitals. Western medicine is practiced in one. Above the door of the other is announced that it is a hospital for Ayurvedic and Unani. The two buildings are on opposite corners and are equally imposing. There is at least one school posing as an Ayurvedic school which is really a school of western medicine with a subordinate department of Ayurvedic.

Homeopathy has some following, and I am told that a six month's course results in a license to practice. Great stress is laid on the theory of potencies and on "Similis similibus curantur."

There are hakims and vaidis who have no training in science, but whose art is passed down from father to son. They have some knowledge of the action of indigenous fruits, herbs, leaves and roots, some "English" drugs, such as belladonna, cannabis indica, nux vomica, sodium bicarbonate, potassium iodide and opium, which can be bought in the bazaars all over India.

In the past many "dispensers" or pharmacists have been licensed and have practiced in the villages. On the whole this has probably been a useful group. They know something of drugs, and if they have a reasonable amount of intelligence certainly must learn from experience what to do for the great curses of the Indian villages—malaria, amoebic and other dysenteries, worms and conjunctivitis.

In addition to these more or less "regular" practitioners are the quacks of various kinds. Some in the more isolated villages may through experience become useful. However, many are vicious and harmful. A striking example of the latter are the "couchers" who go among the villages treating cataracts. With a needle they loosen the lens and push it back into the vitreous. This gives immediate restoration of vision. However, in ninety percent of cases irremediable blindness results within three years and in some cases within a few hours. The lens acts as a foreign body and may cause panophthalmitis. Recently, I heard of a "school" where in a course of two weeks the techniques of couching and of the injection of penicillin is given.

Obstetrics in the villages is largely in the hands of untrained midwives or of the neighboring women who have little conception of asepsis and no knowledge of the way to handle abnormalities. Consequently, maternal and infant mortality are high. The prejudice against men attending women is gradually breaking down,

but it is still an advantage to have a woman in charge of this branch. Two of the mission schools, which, until just recently have taken only women as students, were founded to meet the demand for women doctors. The Lady Harding School in Delhi is also a medical college for women.

Surgery in the villages is largely that of wounds and fractures and may be very crude. I saw one boy whose arm had to be amputated in the mid-humeral region, one whose hand had to be amputated, and another whose hand was rigid and ischaemic. All were due to mistreated fractures.

In the colleges surgery is well taught, and the standard of Indian surgery in the cities is high. I have attended two sessions of the India Surgical Society and have been impressed with the calibre of the men and the papers presented. The papers are all in English, for the members come from all parts of India and all the major languages are represented.

Abdominal and pelvic surgery seems to be well handled. A good deal of lung surgery is done. I have not heard of any heart surgery, but at the last meeting of the Surgical Society a movie of a mitral valvectomy was shown. I suspect that such operations will soon be attempted. Neurosurgery is a new field, but there are outstanding neurosurgeons in Vellore and Bombay and probably in Calcutta.

There are numerous orthopedic men, and there is plenty of work for them for the results of poliomyelitis and of mistreated trauma can be seen on driving through any village. Urology is not yet a specialty, and a cystoscopic examination is treated as a major procedure.

Tropical and parasitical diseases are well known and well treated. One of the worlds outstanding schools of tropical medicine is in Calcutta.

Xrays are common, but unless subsidized by government or mission they are beyond the reach of the poor. Where a coolie's daily wage is a rupee and a half, and the cost of an Xray is twenty rupees, the problem is obvious. Pictures are often made on photographic paper, but such are of limited use. Deep Xray therapy is used in many places, and a supply of radium is possessed by a few hospitals.

The newer antibiotics are available pretty generally and are used even by the Ayurvedic physicians. Penicillin is used freely and is often given free, but the others are expensive.

Now for a few of our own personal experiences and observations in India. In the region where we are stationed, insects are not a problem. In the year and a half we have been here we have not slept under mosquito nets a half dozen times. However, we use nets when we travel in hot weather or in moist areas, especially when we sleep in unscreened traveller bungalows. We also take with us prophylactic camoquine. We have not seen malaria except in the chronic state with the large spleen and that from outside our district which is dry and free from the disease. Our visits have taken us to regions where the rainfall is heavy. These areas which formerly suffered greatly from malaria are now almost free as a result of the use of D. D. T. supplied by the government.

The chief curse of our region, and I believe of all India, is the amoeba. The infestation rate is high, and I understand that all westerners are infected sooner or later. We were both infected in our first year. I was the first, and for three months was under par. My wife was more seriously affected, for she had hepatitis and was in bed for three months. All of us are careful about boiling our water and milk and avoiding uncooked foods. In spite of this, more westerners are invalided home because of the amoeba than for any other cause.

We see typhoid, paratyphoid and cholera in the hospital but no plague. The mortality of cholera is high, for most cases come to us in the late stages. We take the cholera vaccine every six months, and, so far, I have not heard of anyone so protected who contracted the disease. As soon as a case of cholera occurs in a village the government sends officials there with vaccine. There have been no great outbreaks in recent years. The times of the pilgrimages are most feared. People come from all parts of the country. The trains are crowded (at the Kumbh Mela I saw people riding on the roofs of the cars). One sick pilgrim has the opportunity of distributing his faeces over a large area. Typhoid seems to yield to the antibiotics, and we have seen no typhus.

I have seen a few cases of elephantiasis, none of acute filariasis, one case of Madura foot, one of Guinea worm with calcified tract, and on one of my trips a case of Kala Azar. Worms, especially round worms, are very common, and in any village children with protuberant bellies are seen running around. Hook worm is a problem in the south.

A severe form of conjunctivitis is seen in the villages, which is probably due to dust, and which causes much blindness from the resulting corneal ulcers. The most heartbreaking sight I have seen was an eighteen month old baby crying because of pain in his eyes. Both corneas were completely and acutely ulcerated away. I am told that there is a form of glaucoma caused by the use, in some places, of a cheaper substitute for mustard oil for cooking. Cataracts are common—more so in some parts of the country than others.

Some of the well known ophthalmologists organize "eye camps" in strategically placed villages. Cataracts are treated on an assembly line basis, and an unbelievable number of operations are done in a day. The best known ophthalmologist on the mission field told me that his personal record was eighty-five operations in one day, and I have heard of other high records. The results are exceptionally good.

Tuberculosis, undernutrition and malnutrition are seen everywhere. I think it is fair to say that most of our patients are undernourished. It is said that in India forty percent are adequately nourished, forty percent are undernourished and twenty percent hungry.

I do not know what the average hemoglobin percent is, but I have come to consider sixty percent good when operating is concerned, and am willing to operate if the hemoglobin is fifty percent. I saw one woman with a percent of eighteen go safely through caesarian section. Ascites is often seen, and cirrhosis of the liver frequent.

At the hospital we see an occasional leper. A mile away and under the supervision of the hospital group there is a leprosarium with two hundred of these unfortunate people. There are said to be between one and two million lepers in India and too few institutions for their care. They gather into groups, more or less pariahs, have their own officers and special laws, and form a kind of nation within a nation. Begging is their chief source of livelihood.

The medical and health problems of India are staggering; however, the government is making heroic efforts to meet them and with some success. It seems fair to say that health conditions show steady improvement. This is borne out by a ten-year increase in life expectancy in the last twenty years.

Health, food and education are all part of the problem. The plan of sending to the villages men and women with some training in fields such as sanitation, agricultural methods, and domestic science is an attempt by the government to partially meet these needs. The Ford Foundation is taking an important part in this plan as well as one of the missionary institutions and the agricultural college at Allahabad.