up, making a marked difference in her physiognomy, as may be seen on comparing the two photographs (Figs. 1 and 2), one taken before the other shortly after injection.

The second patient was a woman, aged 41. She was admitted to the Western Infirmary under my care on March 12th, on account of a marked depression of the nose (see Fig. 3). There was a history of syphilis having been contracted seventeen years ago, and five years ago she received a blow on the nose which was followed by a persistent purulent discharge. Two years later she noticed that her nose was "falling in," and she came to the department under my charge at the Western Infirmary, when it was found that the septal cartilage was wholly absent.

On March 14th sterilized paraffin with a melting point of 104° F. was injected in a fluid state into the subcutaneous tissue of the nose by means of a serum syringe. In this case the needle was inserted near the central point of the depression in the middle line. The paraffin was kept in a fluid state by means similar to those used in the first case; fully 1 drachm was injected, and the injected material was confined to the depressed area by digital pressure, and subsequently by the use of celloidin. The depression was so raised and the raised portion so moulded that now her nose is not only presentable, but is a well-shaped feature of her face (Fig. 4).

ON THE SPREAD OF LEPROSY AND AN EXAMINATION OF THE FISH HYPOTHESIS OF LEPROSY AS APPLIED TO KASHMIR.

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It is difficult to estimate the exact amount of leprosy in Kashmir. It is possible that there may be 300 cases in a population of a million. The distribution of the disease is peculiar. It is rare in the City of Srinagar, uncommon in the other towns and villages of the alluvial plain, but is met with, in increasing frequency, in the uplands which skirt the valley and the tributary valleys which debouch into it. With but few exceptions the lepers of Kashmir are either herdsmen from mountainous districts, or agriculturists who have mixed freely with such herdsmen. The distinctive feature of the herdsman's occupation is close contact with cattle, sheep, and goats, and residence in small, crowded, very badly ventilated huts. With regard to sex, it is an interesting fact that the disease is rarer amongst women, who form only about 10 per cent. of the lepers. The disease is also very rare among Hindus, of whom there are about three in every hundred lepers. It is not altogether clear how the disease spreads. Heredity appears to play but a small part. Of 143 lepers 115 gave no such history. In travelling in different parts of Kashmir, if in a given district one leper is found, others will usually not be far distant. This points in the direction of contagion. One theory of the spread of leprosy—the fish hypothesis—has been adopted and put forward by Mr. Jonathan Hutchinson. The suggestion is "that leprosy is in some way connected with the eating of fish in an uncooked and often decomposing state." "It is suspected that fish food of this kind, uncooked, may either carry the bacillus itself or may be the stimulant which excites it to action."

In order to test this theory in Kashmir, let us look into the question of fish consumption. A large amount of fish is taken out of the lakes and rivers of Kashmir. This is consumed in three forms, namely, fresh, dried, and in sauces or powdered relishes.

How is this fish distributed? Large quantities are consumed by the extensive boating population. Very large amounts are sold in the city, where all kinds of fish can be seen exposed for sale. Even the Hindus, in spite of its being contrary to their religion to do so, are accustomed to eat prepared fish in various forms. A certain amount of dried fish finds its way to the villages, but it is not very common there, and the demand for it is relatively small owing to the abundance of vegetables and fresh meat. There is no ground for supposing that the fish consumed in Kashmir households is not partaken of as freely by women as by men.

The next point is the relationship of the distribution of leprosy to the distribution of fish. It has already been shown that thousands of people have eaten fish in various forms

without developing leprosy, which is rarest in the districts of greatest fish consumption. (I have only met with one boatman who was a leper.)

The next question is, Are there any people who have not consumed fish who have nevertheless developed leprosy? In 1892 I completed an inquiry into the diet of 143 cases of leprosy; 79 had eaten fish, either frequently or occasionally, and 64 absolutely denied having eaten fish. In January, 1902, there were 65 lepers in the State Leper Hospital; of these, 22 stated that before developing the disease they had never eaten fish in any form; of the rest, 20 had taken fish in its three forms—namely, fresh, dry, and as a condiment; 1 had eaten it in chutnee, 3 had eaten it fresh or dried, and 19 had eaten fresh fish. Thus we see that quite a considerable number of lepers deny having eaten fish.

That there is nothing intrinsically improbable in the transmission of leprosy by fish may be admitted. Dried or salt fish contains, of course, a great number of putrefactive organisms. It might prove a suitable nidus for the leprosy bacillus. It seems, however, much more likely to be a carrier of leprosy virus, with which it has been in accidental contact, than itself an actual cause *de novo* of the disease, and if the former, then it may be relegated to a minor place as a possible medium of conveyance.

It is possible that many nutrient substances might similarly become sources of danger, such as dried or salt meat, butter, cheese, or milk. It is easy to see that a leprosy milkman might spread infection. Europeans who drink unboiled milk, if they chance to live in a district where leprosy is endemic, might contract the disease in this way. The water supply in many villages in Kashmir is scanty and liable to extreme degrees of contamination. It is well known that the lepra bacillus is frequently present in the saliva and expectoration of lepers. As in tuberculosis this must be considered as a very probable means of its spread. Many of the huts inhabited by lepers and non-lepers are absolutely without ventilation. Under these circumstances contagion or infection is by no means improbable. Children of lepers at birth are free of the disease; but unless separated from their parents they are almost sure to develop it within a few years. Here I believe contagion comes into play. It is true that lepers often deny the existence of any other case of the disease in their district. But a Kashmir peasant is not necessarily able to diagnose mild or early cases of leprosy.

The question of the spread of leprosy is one of great importance in those countries in which the disease is endemic. The measures which we take are, no doubt, governed by our theories. If acceptance of the fish hypothesis leads us to deal with the matter by aiming alone at the inhibition of unwholesome fish food, then it appears to me a mischievous theory. If the disease is to be stamped out the most important measures to be taken are, in my opinion, first, to separate healthy children from their leprosy parents as soon as possible; secondly, to withdraw lepers from the general community as completely as possible; and thirdly, to use such proper sanitary precautions as shall prevent possible infection or contagion; such, for instance, as disinfecting dirty clothing by heat before washing, forbidding expectoration on floors or ground; exercising careful supervision over the free ventilation, exposure to sunlight and general cleanliness of the buildings, inside and out, and of their surroundings, and of the disposal of dangerous refuse. It is important to regulate the contact of healthy attendants with lepers, bearing in mind the danger from their clothing and discharges. In fact, the disease should be treated as no less infectious than tuberculosis, to which it presents not a few points of resemblance.

CASE OF EPITHELIOMA COMPLICATING LUPUS ERYTHEMATOSUS TREATED BY SCRAPING AND HEALED BY THE X RAYS.

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History.—G. R., aged 59, a man of robust physique, formerly a sailor, but now a dock labourer, first came under my care in 1892 suffering from lupus erythematosus of the