results are a marked diminution in size, with disappearance of the attachment of the node to the skin and to the underlying tissues, and ultimately almost complete freedom from pain.

The latest Bradshaw lecturer⁴ has expressed his confident hope "that the final victory over cancer will not solely be by the knife." I am a sharer in this confidence, and feel certain that the victory will ultimately be by a serum.

REFERENCES.

¹ BRITISH MEDICAL JOURNAL, December 1st, 1906, p. 1553. ² Ibid., p. 1550. ³ Ibid., p. 1552. ⁴ Owen, *Ibid.*, December 15th, 1906, p. 1687.

INFLAMMATORY CHANGES IN POSTERIOR SPINAL ROOT GANGLIA IN CASES OF CUTANEOUS CANCER.

By G. LENTHAL CHEATLE, C.B., F.R.C.S.,
SURGEON TO KING'S COLLEGE HOSPITAL, AND ITALIAN HOSPITAL.

IN the BRITISH MEDICAL JOURNAL, April 13th, 1903,* I pointed out that the spread of cancer in skin was associated with degeneration changes in the posterior spinal root ganglia which supplied the area invaded, and I described the changes observed. These intracellular changes were not observed in the corresponding ganglia of the opposite side, which were in marked contrast to them. In the article to which I have referred I did not demonstrate inflammatory changes within the ganglia in question. In the present article I publish 2 cases in which cancer had begun on the cutaneous distribution of one ganglion and spread into the cutaneous distribution of its neighbours, yet it is only in the ganglion on the distribution of which the cancer had begun that inflammatory changes can be seen, whilst the ganglia into whose cutaneous distributions the cancer had spread showed the changes of degeneration to which I referred in my paper of 1903.

CASE I.

The head of a woman, aged 71, who had a rodent ulcer on the face for about thirty years, is shown in Fig. 1. The disease began on the left side of the nose near the inner canthus, and spread on to the right side of the face. Pain was of a very marked, severe, and uncontrollable nature.

EXAMINATION OF THE GASSERIAN GANGLIA.

The right Gasserian ganglion is normal except for the intracellular degeneration which existed in the ganglion cells. There is no sign of inflammation in the ganglion and parts with which it is surrounded. The left Gasserian ganglion is enclosed in a very thickened capsule, and between the ganglion cells there is a marked inflammatory change. Here can be seen an infiltration of polynuclear neutrophile leucocytes and an accumulation of lymphocytes. There is no haemorrhage, but a great deal of intracellular degeneration change in the ganglion cells. There is no inflammatory change to be seen in the membranes surrounding the ganglion. The pituitary

body, which was also microscopically examined, was normal.

CASE II.

Fig. 2 is the photograph of a man, aged 52, who had been a porter for thirty years, and whose duty it was to load carts for certain stores. He could not associate any mechanical or other irritation with the seat of his lesions. There was no history or evidence of syphilis, although in the microscopical examination of his posterior spinal root ganglia changes can be seen in the walls of some of the blood vessels, which suggest that syphilis may have been their cause. Agonizing pain, which was very difficult to relieve, was the chief complaint of this patient. In the photograph two lesions (B and C) are to be seen on the left side. They are quite distinct from each other, clinically and microscopically; B has all the characteristics of "Paget's disease of the nipple." At the time when the medical societies were meeting the patient was too ill to be moved, otherwise I would have shown him. Dr. Arthur Whitfield came to see the case with me, and he diagnosed this lesion, clinically and microscopically, to be the same as Paget's disease of the nipple. I have shown sections to Mr. Shattock and Dr. Radcliffe Crocker, and they agree with that opinion.

The disease began four years ago at the point where the lateral branch of the eleventh dorsal nerve becomes cutaneous. There was no reason to suppose from the man's history or the situation that it began on a supernumerary nipple in this region. The disease spread mainly backwards and slightly forwards.

The distribution of this disease seen in the photograph is that of the lateral cutaneous branch of the eleventh dorsal nerve, but he remained in hospital until he died, four months after this photograph was taken, and during this time it spread backwards towards the spinal column, a little more forwards, but, so far as we could see, it did not spread upwards or downwards; so it practically covered the area supplied by the eleventh dorsal posterior spinal root ganglion. It is very similar to the distribution of the herpes zoster in Fig. 3 and of the morphea at B in Fig. 4. And I have a case kindly sent to me by Mr. J. Sherren, in which the lateral cutaneous branches of the tenth and twelfth dorsal nerves are covered by leucoderma, whilst that of the eleventh dorsal nerve escaped and was free from leucoderma.

In most of the cases of Paget's disease of the nipple which I have seen in other parts of the body, the areas were peripheral, but when they affected the same region in different cases they, as a rule, occupied the same areas. I hope in some future communication to refer to the nature of Paget's disease of the nipple.

The lower lesion C, situated upon the upper part of the left thigh, is a squamous epithelioma which began eight months ago (three years and four months after the lesion B). It rapidly spread to the size shown, and diffused itself by appearing as apparently discrete herpetic looking spots down the limb, across the hypogastric region, and reached the upper part of the thigh on the opposite side. All these foci were squamous epithelioma. There was also

Fig. 1.

Fig. 2.—A, Secondary deposit to tumours at C; B, "Paget's disease of the nipple"; C, squamous epithelioma.

* Note upon a Possible Relationship between Carcinoma and Nerve and Trophic Areas.

a large secondary deposit at A, and the axillary glands on the left side and the inguinal glands of both sides

Fig. 3.—From *The Pathology of Herpes Zoster, and its Bearing on Sensory Localization*. Henry Head, M.B., F.R.S., and A. W. Campbell, M.B.

also contain squamous epithelioma. The swollen condition in the left leg is mainly due to lymphatic and venous obstruction. The lymphatic glands of the abdomen were apparently free of disease.

Many of the facts described above were ascertained from post-mortem examination. Dr. Purves Stewart gave me his able assistance in securing and preparing for microscopical examination the posterior spinal root ganglia.

The result of this examination was as follows: On the left side, the ninth, tenth, and twelfth dorsal ganglia were normal; the eleventh dorsal and first lumbar ganglia were inflamed; in the eleventh dorsal there was a small haemorrhage as well. The inflammation was not so intense as is usually seen in the ganglia in cases of herpes zoster, but the eleventh dorsal and first lumbar ganglia contained an infiltration of polynuclear neutrophile leucocytes and an accumulation of lymphocytes. Also a few mast cells. It will be seen (Fig. 2) that the squamous epithelioma began on the distribution of the posterior spinal ganglion of the first lumbar of the left side.

The corresponding ganglia of the right side did not show signs of leucocyte invasion and accumulation of lymphocytes. Hence

it is the fact that the only ganglia to show inflammatory changes were those on whose distribution cancer began.

I did not know before, nor can I find any reference to this fact of there being inflammatory changes within posterior spinal root ganglia in cases of cancer. One thing seems to be accounted for with certainty by the knowledge of the fact, and that is the cause of the intolerable and agonizing pain which was the chief source

of complaint in these two cases. It was a root pain, and not only one of peripheral origin. Hence it is more than probable that the pain in other cases of cancer is one of root origin, as well as due to a peripheral cause.

There are, however, much more fundamental questions arising out of the observation:

1. Is the inflammatory change within the posterior spinal root ganglia in any way connected with the origin or spread of cancer?

2. If it is, did it exist before the cancer began? and hence, had it anything to do with the genesis or point of incidence?

3. Or if it occurred secondary to the cancer, had its presence anything to do with the spread of that disease?

At present it is impossible to answer any of these questions with certainty; I have already pointed out that rodent ulcers and this case of Paget's disease of the nipple began on parts of the skin where nerves, particularly the smaller nerves, become cutaneous; and that areas of occupation of cancer in the skin correspond to nerve areas in a very suggestive manner; and in their distribution resembles the area of the spread of morphea, leucoderma, naevi, herpes zoster on the head and face, and some cases of moles.

However, in connexion with this question it may be said that if the lesions in the ganglia were secondary to the lesions of the skin then one would have expected that these would have been also secondary inflammatory changes in all the ganglia whose peripheral branches were involved in the lesions, but that does not occur in these two cases, in spite of the fact that these particular branches had been involved for many years.

Fig. 4.—Dr. Radcliffe Crocker's case of morphea.

sed in the estimation of competent authorities by a combination with mercury. Landing stages on Lake Victoria, forts, ferries, and water holes will be completely cleared of vegetation, in the hope of stamping out the fly.

By a recent decision of the Minister of Public Instruction, alopecia areata (*pelade*) has been removed from the list of diseases which came under the law relating to epidemics in the schools of Paris.

REUTER'S Agency states that the Treasury has authorized the expenditure of the funds necessary to carry out the scheme for the suppression of sleeping sickness in Uganda recommended by the Commissioner, Mr. Hasketh Bell. The natives are to be removed from the fly-infested district on the shores of Lake Victoria, and the sick are to be placed in segregation camps, where they will be treated by what is called the atoxyl treatment, although, we understand, this has already been super-