between the cancer and the healthy breast tissue, at the place, in fact, which has been found to be most desirable. The operation was made possible by the use of the drug, and it was thought undesirable to allow the patient the distress arising from the weight of the growth. At the time at which this paper is written it appears probable that the patient will benefit notwithstanding the unfavourable microscopic evidence.

The second case, so far, appears to be more favourable, owing to the rapid diminution in the size of the nodule, and a further report will be published later.

CONCLUSIONS.

To sum up: The condition which the treatment is designed to produce is, first, a leucocytosis; and, secondly, a fibrosis in the tissue affected by cancer. In the case of pulmonary tuberculosis there is no difficulty in producing these conditions; in that of cancer much greater difficulty is experienced in advanced cases than in the case of tuberculosis. However, it is claimed that the treatment is soundly based, and that although it is quite likely that the best possible means of initiating the changes desired has not yet been found, it is only a matter of time for improvement in the details of treatment to be effected.

In connexion with this statement it must be remembered that cancer is a very wide term, embracing a very large number of pathological growths; that it is not always possible to obtain specimens to satisfy the lust of pathology; that a clinician like myself has for his first object the removal of the morbid condition; his second—if he fails in his first—the alleviation of suffering.

The solution of the whole problem requires time and many workers. At Birmingham my great master, the late Dr. Matthews Duncan, speaking upon the subject of puerperal fever, said: "The ideas suggesting the researches of Pasteur, of Toussaint, of Greenfield, and Buchner may prove to be mere *ignes fatui*, but they may prove, on the contrary, to be true guides. It is by following out such ideas, verifying or disproving them by new investigations, that progress is made in science."

I intend to proceed in the course which I have adopted, and that is, to report from time to time the different clues which I obtain, and I must leave it to the rest of my profession either to follow Dr. Matthews Duncan's line with regard to my work, or to leave the matter alone.

It may be objected that I have not published the name of the second substance with which I have worked; this I shall do at the earliest possible moment, but at present the work is scarcely sufficiently forward for me to justify a preference for it over the cinamate of sodium. Dr. Morgan and I intend to leave no stone unturned which would prevent the placing at the command of the profession the best possible substance.

Finally, I desire to point out that the process of repair in tissues affected by cancer requires from the vital powers of human cells a very great expenditure of energy, and that there is therefore a loss of energy in the effort to repair. Success, therefore, in attempting to treat patients stricken with the disease with good results must depend to a great extent upon the physical condition of the patient treated, and, to some extent, upon the portion of the body attacked. The expectation of any successful specific form of treatment will probably prove a vain one—that of one based upon any lines such as those which I have above set out has, I venture to believe, been found, and no doubt improved ones will follow.

REFERENCE.

¹ *Lancet*, November 6th, 1880.

"PARAFFIN CANCER."

By ROBERT KIRK, M.D. EDIN.,
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To medical men practising in the mineral oil district, the prevalence of epithelioma among the workmen has been for many years a well-recognized fact, and the most cursory examination of the cases has shown that while the shale miners and reft men are generally exempt, the great majority of cases is found among the men employed in refining the solid paraffin. Cases, although not yet uncommon, are not nearly so numerous nowadays as they were some thirty years ago, and this, I think, is accounted for by the different process now used to purify the shale. This is now effected by superheated steam, while in the early days of the industry the

method of refining was shortly as follows: The crude paraffin was melted and mixed with naphtha, thoroughly agitated, and then run over a revolving drum containing a freezing mixture, which solidified it. It was scraped off the drum by a stationary knife, and the solid mass was then placed in bags and subjected to hydraulic pressure, by which the naphtha with impurities was got rid of. This process was repeated three times, and the naphtha used for the first washing was redistilled, fresh naphtha being always used for the third.

The workmen employed wore leather aprons and generally also leggings, and worked with their arms bare to the elbows, and from the nature of their work the hands and fore-arms were constantly in contact with the naphtha mixture, and as a consequence cases of eczema of a most intractable nature were very common. A continuation of the irritant generally caused deep inflammation of the hair follicles with small indurations which went on to what were generally known among the workmen as "paraffin plukes," and which were really small boils. These took a long time to heal, and left considerable hardening of the skin behind them, the cicatrices being generally pigmented of a dark brown colour.

Instead of healing, however, a considerable proportion of these boils after the slough had separated took on an ulcerative action, the centre breaking down and the edges remaining hard and ragged. These ulcers were very indolent, but were not accompanied by any affection of the glands, and when they cicatrized the cicatrix was without pigment, a smooth white patch on an otherwise pigmented arm. The great majority of these ulcers were simple non-malignant, but a considerable proportion took on malignant characters, the centre covered by unhealthy sanious discharge, the edges very hard, with considerable infiltration of the surrounding skin, and exhibiting all the characters, both macroscopic and microscopic, of epithelioma.

Early excision gave always satisfactory results; indeed, I have never seen recurrence of the growth in the scar when the incision included healthy skin all round, and as a result a fatal issue from the disease was extremely rare. Sometimes, although rarely, the gland on the inner aspect of the elbow became infiltrated and removal of it was necessary, but as a general rule the glands were not infiltrated.

The forearms were generally the site of the disease, but one case came under my notice eighteen years ago which was quite analogous to chimney sweeper's cancer. The patient, a man 30 years of age, would not wear the leather apron and in consequence his trousers got soaked with the paraffin mixture. He had eczema of the scrotum, with boils over the anterior surfaces of the thighs, but having heard so much about them from his fellow workmen paid little heed to them. He sought no advice but persevered at his work until at last he could not walk without very great pain. Then I saw him, and found him in an utterly hopeless condition with the right side of the scrotum, the root of the penis, the abdominal wall and inguinal region all involved in an epitheliomatous mass. Operation was out of the question and the poor fellow died some two months afterwards.

At present I have under observation a man whose history is shortly as follows. He is 71 years of age, healthy looking, well-nourished, working nine or ten hours a day. He entered the paraffin refinery thirty-four years ago, and suffered both from eczema and boils. Twelve years ago one of these boils broke down, ulcerated, and became epitheliomatous, and troubled him for nearly a year, when I excised it, the tumour being $1\frac{1}{4}$ in. in diameter, situated on the right forearm $4\frac{1}{2}$ in. below the olecranon to the ulnar side. To-day the scar is perfectly healthy. Eighteen months ago he consulted me about another ulcerating tumour on the right forearm near the head of the radius. Mr. Caird removed this in the Edinburgh Royal Infirmary. There has been no recurrence in the scar, but last July he again consulted me about another tumour within an inch of the scar; that was also removed, and at present there is no evidence of any further lesions. These tumours were all epitheliomata, and the conclusion that one must come to is that long-continued irritation certainly does predispose to the production of malignant disease.

BEQUESTS TO HOSPITAL.—The executors under the will of the late Mr. Robert Munn, of Burnley, have paid over to the Victoria Hospital for Burnley and district his residuary estate of £8,000, of which £4,000 is to form part of the endowment fund of the hospital, and the remainder to be for its general purposes.