tissues around were also softer and more pliable. On Aug. 1st it was noted that the local improvement continued and that the measurements of the largest area of disease were—length, $2\frac{3}{4}$ in.; breadth, $1\frac{1}{4}$ in.; while the depth was hardly appreciable. The colour was a dull yellowish-white and the vascularity slight. There were five small nodules in the axillary region, which were also diminishing in size and vascularity, though perhaps not so much as the larger growth. The patient's general health and nourishment were satisfactory; and as she was an intelligent and reliable woman, and interested in her own case, I allowed her to go to Bridge of Allan for a change, and asked her to report herself from time to time. This she did, and without going into a detailed account of her condition on each visit that she made I may say that the local improvement continued, and my note on Oct. 12th, just four months after the operation of oöphorectomy, was as follows: "On examination of the left breast the condition of the tissues is favourable. The most remarkable feature of the case is the yellow fatty look that the former thick bar of cancerous tissue above the scar of the incision for removal of the breast presents. It is to my mind the most striking feature of the case. The cancerous tissue has been reduced to a very thin layer and is in no way raised above the surrounding skin. In fact, the whole surface is smooth and level, and to the naked eye it seems as if the skin at this part had a yellow look. So distinct is this that one could easily trace out the outline of this yellow-coloured tissue. At places the surrounding skin seems pushing its way into the yellow mass and the processes of bluish cicatricial tissue are to be noted. The yellowish nodules at the axillary end of the incision are still apparent from their colour, but they seem thinning out. The whole of the tissues on the chest wall are more movable and the surrounding skin has a clear and healthy look. The scar of the former ulcer above the mammary excision cicatrix is sound and no new nodules are at present observable. The patient expresses herself as feeling very well and looks so. She is taking four 5-gr. tabloids of thyroid extract daily." I need not trouble with any further detailed account of this patient than to say that eight months after my operation all vestiges of her previous cancerous disease had disappeared, and that I am able to show her with a sound cicatrix and healthy thoracic tissues, and that she is apparently in excellent health.

(To be concluded.)

NOTE ON EUCAINE AS A LOCAL ANÆSTHETIC.

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THE *Medizinische Novitäten* for June quotes from the *Aerztlicher Central-Anzeiger* a condensed account of a paper read before the Hufeland Society of Berlin by Dr. Gaetano, of Vinci, Messina, on the properties of "eucaine" as a local anæsthetic, and this account induced me to make further inquiry into the subject. I have since seen an English summary of the paper in which the author is described as "Dr. G. Vinci," and I do not know which of the two versions of his name is correct.

I am informed that eucaine is not derived from the vegetable kingdom, but that it is a laboratory product which can be prepared in any quantity at moderate cost. I am also informed that its proper designation is "methyl-benzoyl-tetramethyl-oxypiperidine-carboxylic-acid-methyl-ester," a combination which seems to open a door, either in speech or writing, for infinite possibilities of error. The trivial name "eucaine" is comparatively free from this objection; but I neither know by whom it was invented nor what idea, if any, it is intended to convey. It is apparently compounded of the prefix "eu" and of the last syllable of "cocaine," and if so may perhaps be regarded as a first cousin of "chlorodyne." But "eucaine" seems to have no meaning, while "green pain" has, at least, the semblance of one.

Dr. Gaetano, or "Dr. G. Vinci," whichever it may be, described eucaine as possessing the properties of cocaine as a local anæsthetic, but as being less toxic and as having no effect upon the pupil. The last statement seemed to me to be of practical importance, because a dilated pupil is an

impediment to the performance of many operations upon the eye. It has long been my practice to neutralise the dilating effect of cocaine by a preliminary application of eserine, but this course is not entirely satisfactory. It is difficult to secure the precise degree of effect which is desired, while the eserine dilates the vessels of the iris and occasions free bleeding when they are incised. It also renders the iris tissue comparatively rigid, so that it is less easily drawn out of the anterior chamber.

I obtained a supply of a 5 per cent, watery solution of eucaine hydrochloride from Mr. Rogers, of 327, Oxford-street, and used it last week for a cataract extraction, the patient being a woman. Before my arrival the nurse had applied a drop of the solution within the lower lid every five minutes for six times, and I found the eye perfectly insensitive. The pupil was unaffected and acted readily to light. There was scarcely any bleeding from the cut iris; there was perfect quiescence of the muscles and there was no pain. I asked the patient whether she had felt anything and she replied, "I felt something moving about my eye but it did not hurt me." There was no pain afterwards and healing was uninterrupted. I have since successfully used a single application of the same solution as a preliminary to the removal of a foreign body embedded in the cornea.

In the original paper it is said that eucaine has been successfully used in dentistry and laryngology, and that solutions may be injected hypodermically without injury. My first experiments will certainly induce me to use it again, and for tenotomies as well as for iridectomy or extraction. It is said that the solution above mentioned may be sterilised by boiling, again and again if necessary, without undergoing decomposition or suffering any deterioration of quality.

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ON THE ORGANIC MEMBRANES AS INSULATORS.

BY SIR BENJAMIN WARD RICHARDSON, M.D., F.R.S.

UP to the present time we have been content to look upon a membrane of the body, the pericardium, the periosteum, the capsule of the kidneys, and any structure of the kind, as a covering of the organ wrapped up in it, that holds the organ, as it were, in a mould, supports it in its place, allows it to glide, and by virtue of the fluid secreted keeps it distinct and separate. There can be no question that these grand functions belong to the membranes, which have ever been to us structures of the utmost moment. I have watched the influence of many substances upon them; have noted their conditions during the various stages of life, and have examined their degenerations during disease and after death. But I have recently made observations on these structures—membranes—which, if I am right, give them a new value, or rather a value that has not before been appreciated. It seems to me they are *electrical insulators*, and by their presence confine and render useful the vital force that is developed in the organs they surround. My first observations leading to this conclusion were conducted on the nervous membranes—those that envelop the cerebral convolutions and the spinal cord; from these I passed on to the other membranous envelopes to find that they all have a common quality.

I obtained an electrical battery consisting of twenty-four small cells, so arranged that one cell could be put on at a time, or the whole or part of the whole as might be required. I commissioned Messrs. Faraday of Berners-street to construct for me a delicate galvanometer, the needle of which moved in a millimetre circle and certified, with accuracy, the force of the current transmitted. I fixed to one pole of the battery a conductor which was connected to the galvanometer, and from the opposite pole of the battery attached a platinum conductor of the same length and carried it also to the galvanometer. This last conductor I divided in the centre and joined the end of the portion from the galvanometer to a platinum disc that was secured by its under surface to a porcelain slab. The other half of the conductor (from the battery) was allowed to remain free with a probe-like end which could be used at any moment to touch the platinum disc and complete the circuit or to touch any substance laid