increase in yield of about 8 lb. of made tea. The corresponding increase in the case of shaded tea, on the other hand, is only about half that amount. From the nitrogen content of plucked shoots, an idea can be obtained about the percentage nitrogen unrecovered, although not all of it may necessarily be lost by leaching. It would appear that a higher percentage of nitrogen remains unrecovered in the case of shaded tea, and this, it is suggested, may serve as a qualitative explanation for the higher rate of calcium loss noted in the case of shaded tea.

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Occurrence of Sex Chromatin in the Basal Cells of the Epidermis and in Basal Cell Carcinomata

THE characteristic mass of sex chromatin, first observed by Barr and Bertram[1] in the nerve cells of the female cat, can be identified in the cells of several different tissues in the human female[2]. The method of 'nuclear sexing' is now a well-recognized technique of exceptional importance in the investigation of disorders of human sexual development. The technique has been applied to the study of human tumours and, provided that good histological preparations have been available, it has been found, in most cases, that sex chromatin was recognizable in the cells of tumours of female patients but not in those of males, that is, the tumour is of the same sex as the host[3-5]. The principal exception is in the case of teratomata, which are always of female nuclear sex if the host is female, but may be male or female if the host is male[3-6]. Two alternative hypotheses have been postulated in explanation of this anomaly: one presumes that the tumour arises by parthenogenesis of haploid germ cells followed by endomitosis to restore the diploid chromosome number; the other supposes that the tumour arises by conjugation of two haploid germ cells.

In addition to teratomata the basal cells of the epidermis and the basal-cell tumours of the skin have been found to be exceptional in this respect. Weinmann, Meyer and Marwah[7] found difficulty in diagnosing the nuclear sex of basal cell tumours of the skin. In a series of 11 such tumours from male patients a sex chromatin-like particle could be identified in many of the parenchymal neoplastic cells and also in many of the cells of the adjacent normal epidermis. It was not suggested that this particle indicated a sex reversal in these tumours, but rather that the chromatin structure of the cell was altered during oncogenesis. A similar explanation was invoked by Tavares[8]; he examined "undifferentiated cell carcinomata", a group of tumours regarded by him as separate from those showing evidence of differentiation, and found that of 18 tumours in males two appeared to be female; while of 35 tumours in females six appeared to be male and in 18 instances the result of sexing the tumour was equivocal. Sachs and Danon[9], on the other hand, reported that the basal cells of the epidermis were devoid of sex chromatin and suggested that this was due to the "high frequency of mitosis" in this site. In view of the discrepancies reported in these cells and in their tumours it was decided to investigate a fresh series of specimens.

The most critical method of determining the presence or absence of sex chromatin in tissue cells is to use these cells alone to determine the sex of the patient from whom the tissue was obtained. It is essential for this type of work that good histological preparations and suitable staining methods should be used. All the material used in this study was fixed in formalin, paraffin sections were cut at 5μ and were stained in hæmatoxylin and eosin, the staining being controlled by microscopical examination during differentiation.

A series of 37 sections of skin taken from the routine surgical material of the hospital was examined. The 'nuclear sex' was determined, first by examination of 100 basal cells and secondly by examination of 100 spinous cells of the overlying epidermis. Nineteen of the patients were female and eighteen male, in every case the 'sex' of the basal cells, the 'sex' of the spinous cells and the apparent morphological sex of the patient were congruous.

A consecutive series of 24 basal cell carcinomata were examined. The sections were first reviewed under the low power of the microscope to confirm the histological diagnosis and to select an area of tumour in which the cells were not too closely packed together by the surrounding tissues. The 'nuclear sex' was then determined by examination of 100 tumour cells followed by the examination of 100 cells in the adjacent epidermis. Nine of the patients were male and fifteen female, in every case the 'sex' of the tumour, of the skin and of the whole patient were identical.

Repeated examinations were made of many of the slides at different times; in no instance were anomalous results obtained.

These observations indicate that there is no peculiarity in the basal cells nor in their tumours, and that, given good histological preparations, sex chromatin can be identified in these structures as in all others. This point was made by Sohval and Gaines[10], who examined 134 tumours from female patients and found sex chromatin in only 33, and is of the utmost importance especially when cytological examination of cells and cell nuclei is used in the investigation of cases of sexual abnormality.

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