

Cineraria maritima and the Treatment of Cataract

SIR.—My attention has been drawn recently to the use of *Cineraria maritima* in the treatment of cataract, its value having been endorsed by "two London ophthalmic surgeons." This is apparently heralded as a new discovery in the daily papers, but that is far from being the case, as it was used by myself as far back as twenty-five years ago, though quite empirically, for I did not know then the influence of potassium in the nutrition of the lens. It was ordered as follows (which is a copy of an old prescription of mine):

"R. Succus Cineraria maritima
Two fluid drachms.

Signe: The Eye Drops,
One drop thrice daily.

October 14th, 1910.

(Signed) J. Burdon-Cooper."

The plant owes its virtue to the potassium it contains, and probably the iodine. It is not a little remarkable that iodide of potassium is the one remedy that has been universally credited with good results in cataract, and this I can now state is due not so much to its iodine as to its potassium content.

Cataract (by this I mean the subcapsular so-called senile variety) is synonymous with death of the lens fibres. As the process continues, potassium (as I have shown spectroscopically for the individual lens) gradually diminishes, until in complete cataract it may be non-existent. The element potassium is a cell food and vital to life, and its loss in cataract agrees with the evidences of a depraved nutrition found pathologically. Since the discovery of glutathione by Hopkins and the work of Adams (Mrs. Campbell), the metabolism of the lens has been considerably simplified. We know now that it takes the character of an active respiratory mechanism, glutathione being oxidized (by giving up hydrogen) and subsequently reduced by beta crystallin of the nuclear portions. This process is most active in the more cortical regions of the lens, where striae in subcapsular senile cataract most frequently develop.

Iodide, of all the salts of potassium, is perhaps the most suitable on account of its diffusibility, and also because when dissociated (or ionized), as it must be before being assimilated by living cells, its iodine acts as an oxidizing agent, favouring the respiratory process. As both potassium and calcium form complex protein ions, potassium contained in organic material is probably more potent than the purely mineral forms. I have found both human and animal lenses contain very small quantities of a large number of elements, such as aluminium, boron, calcium, iron, potassium, lithium, magnesium, manganese, sodium, phosphorus, lead, silicon, strontium, zinc, and silver. These function as catalysts in the auto-oxidation system of the lens.

A recent specimen of tincture of cineraria kindly analysed spectroscopically by my friend Dr. Judd Lewis was found to contain all the elements indicated above as occurring in the ash of the human lens, potassium preponderating to the extent of 15 per cent., calcium and sodium amounting to about 10 per cent. The amounts of aluminium, manganese, iron, and phosphorus are definitely appreciable. (These figures are only approximations.) It will be seen, therefore, that cineraria is well balanced as a local application, containing as it does all the elements that exist in the lens, and especially those (potassium and calcium) which we have come to recognize as absolutely essential to its well-being. The recently expressed juice has a very strong pungent smell, probably due to a volatile oil, and when applied locally produces a distinct hyperaemia and leucocytosis. Some of the benefit may be due to this as well as to the mineral content, as the leucocytes are known to be carriers of food elements to depraved tissues.

It is always difficult in such a condition as cataract to gauge the value of any local remedy, as the opacities may alter, and do, without any treatment whatever, and the vision may vary within wide limits without any alteration in the opacity. Cataract is a specific metabolic disease, and the trend of opinion to-day is that it is more acceptable to regard it as due to alteration in the whole organism rather than to any purely mechanical change. As such, it demands more in the way of treatment than any purely local application, however valuable this may appear to be. We need only a superficial review of the causes to see this. There is, for instance, a wide difference between hookworm disease and an ovarian cyst, and more still between septic tonsils, alcoholism, avitaminosis, and, say, refractive error, but all may, and do, have a profound effect upon the lens, and should be met by treatment applicable to them. With me it is an axiom that no local treatment should be considered sufficient without a diligent search for the cause, however difficult this may be. Although the causes may be as diverse as the poles, they all act in the same way, either by vitiating or denying nutritive supply.

The recognition of the importance of potassium and ionic calcium in the preservation of the health of the crystalline lens is a definite step forward in the treatment of cataract. *Cineraria* may have a rival in *Fucus vesiculosus* (the common seaweed), which I am now putting to a critical test, and I have a feeling that it will probably act quite as well as, and is incidentally less expensive than, its ally cineraria.—I am, etc.,

Bath, Dec. 28th, 1935.

J. BURDON-COOPER.

The School Child's Teeth

SIR.—The paragraph on teeth in your summary of the annual report on the Health of the School Child is notable for its critical value, and requires special attention. It is essential, as the report declares, that the development of the school dental service should be "unhampered by fixed ideas." The fixed ideas held by dentists, medical men, and the public also as to dental caries will be found hard to dispel. The report proceeds: "An inquiry into children naturally free from dental caries has revealed one safe generalization only: that the regular use of the toothbrush is not essential for freedom from caries." The prejudice against this conclusion will be hard to get rid of. Unfortunately it is not yet known that irregular brushing—intermittent brushing—is responsible for millions of dental cavities in these islands as well as elsewhere. The report significantly concludes: "The dietetic habits of these children gave results that can only be described as bewildering. All sorts of dietetic errors had been committed by those showing perfect teeth."

The dental aspect of dietetics is a dynamic one, and has not heretofore been enunciated. The teeth are essentially dynamic instruments, and the cause of caries is the dynamic misuse or abuse of the teeth. I hold that the presence or absence of caries in the mouth is determined respectively, without exception, by one or other of the following two laws:

1. If the forces falling on the enamel of the teeth are the same from day to day the teeth will never decay. This is illustrated by the teeth of the lower mammalia and the domesticated species. The teeth of these animals are free from caries because each species give their teeth the same daily specific amount of work. The herbivora, for example, spend a very great part of their waking life either grazing or chewing the cud, whereas the carnivora devour their food and eating occupies very little time. The inhabitants of Tristan da Cunha eat soft food, the Eskimo tough food, but each spend the same amount of daily work on their respective foods, and they are also free from interruptions of mastication from illness. If the clinical histories of the 560 children with