

active principle and to isolate it in a form suitable for therapeutic use.

The work was initiated in the laboratories of the Hamilton General Hospital with the co-operation of Dr. W. J. Deadman. Extracts of foetal pig livers were used during the earlier stages of the work on animals. Later extracts of both foetal and adult pig livers were employed in the clinical work. The preparations were first administered to mice in which Marsh tumour tissue had been transplanted, an equal number of transplanted animals being untreated and used as controls. It was noted that as compared with the controls the extension of the transplanted tissue was arrested in the mice under treatment, and with repeated injections distant from the site of the tumour, a total necrosis of the transplants occurred. The degeneration of the tumour tissue did not take place in the centre of the mass as normally occurs, but commenced at the periphery of the growth.

The work was afterwards transferred to the McGregor-Mowbray clinic of Hamilton, which has borne the entire expense of the earlier chemical investigation, and under the supervision of which all the clinical research has been carried out. The preparations which were originally employed contained relatively small quantities of the active principle. Recently the co-operation of Profs. A. Bruce Macallum and A. A. James, of the Department of Biochemistry of the University of Western Ontario, London, has been enlisted, and they have developed a preparation from beef livers which contains the active principle in a highly concentrated form and can be rapidly and economically prepared. These preparations effect no changes in the blood pressure.

The clinical results to date in those patients who have received the treatment may be summarised as follows: in one patient there was complete disappearance of the tumour mass; in others still under treatment a reduction in the size of the growth has been noted. In every case the progress of the disease has been arrested and the life of the patient prolonged beyond that of the prognosis given before treatment commenced. So far only inoperable and otherwise hopeless cases have been treated. No radical claims are advanced for this treatment, but the results obtained clinically have warranted a more extensive investigation which is now being carried out at the University of Western Ontario, London, and the McGregor-Mowbray Clinic, Hamilton.

This preliminary communication is made for the purpose of scientific record.

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Kammerer's Alytes.

As I was intimately connected with Dr. Kammerer's visit to England in 1923, and as his specimens were unpacked in my laboratory and examined there before being taken to Cambridge, perhaps I may be allowed to make some comments on Dr. Noble's communication to NATURE of August 7. As to the present condition of the Alytes, about which there has been so much controversy, I know nothing. Dr. Przibram's view that the specimen after its return to Vienna was allowed to fade and macerate and that then a clumsy attempt at 'faked' restoration was made, appears to me probable. But this specimen was demonstrated to a continuous stream of critical observers for a whole afternoon in the Zoological Laboratory at Cambridge by Dr. Kammerer, who removed it from its case and

invited examination under a lens. We all saw the spines; it was these and not the colour which convinced us. Dr. Noble may set his mind quite at rest as to the former existence of nuptial asperities.

I possess a print of the photograph which shows them—it is not a question, as Dr. Noble imagines, of two or three spines but of a whole series of minute spines regularly spaced which can be clearly seen in profile along the edge of one of the fingers.

In the attack which he made on Dr. Kammerer at the meeting of the British Association last year, Dr. Noble laid great stress on the peculiar glands characteristic, as he said, of the nuptial pads, indeed, as he then stated, diagnostic of them, whilst the asperities were irrelevant. By his reference to Champy's paper in his present letter it is clear that he has since discovered his mistake. The glands found in these pads are merely the ordinary skin glands hypertrophied under the influence of the sexual hormone as the breeding period approaches. I have compared photographs of the sections through the normal skin of Alytes and through the 'pad.' The skin glands in the latter section are double the size of those in the former.

In conclusion, I may say that when Dr. Kammerer came to my laboratory in 1923 he brought other specimens about the existence of which I was sceptical until I saw them and which struck me as much more wonderful than Alytes. I refer to the large-eyed specimens of Proteus.

I suggest that Dr. Noble and his colleagues, instead of making aspersions on the good faith of a fellow-worker and the credulity of English scientists, would be better employed in endeavouring, as I have done, to repeat Kammerer's experiments, and when they have produced anything half as wonderful as the Proteus their comments will be listened to with more patience.

E. W. MACBRIDE.

The Birefringence of Crystalline Carbonates, Nitrates and Sulphates.

IN two very interesting papers (*Proc. Roy. Soc.*, vol. 105, p. 370, and vol. 106, p. 346, 1924) Prof. W. L. Bragg put forward an explanation of the strong birefringence exhibited by the crystalline carbonates and nitrates. Expressed very briefly, his theory is that in the carbonate and nitrate ions the oxygen atoms are situated in one plane around the central carbon or nitrogen atom, as the case may be, and that, as the result of this arrangement and of the mutual influence of the electric doublets induced in the atoms by the field of the light-waves, the refractivity of the group depends to a marked extent on the direction of the light-vector. The refractive indices of the crystal were successfully computed on this basis. The crystalline sulphates are known, on the other hand, to have a very weak birefringence, and the suggestion was made that very probably the oxygen atoms are arranged tetrahedrally round the sulphur atom in the sulphate ion group, thus making it optically isotropic.

Very interesting evidence regarding the birefringence of the nitrate and sulphate ions is furnished by some recent observations on the scattering of light by concentrated acids and their aqueous solutions made in the present writer's laboratory by Mr. S. Venkateswaran. The light scattered by dust-free nitric acid is found to be nearly unpolarised, indicating an extremely large anisotropy for the nitric acid molecule and for the nitrate ion. Concentrated sulphuric acid and its aqueous solutions, on the other hand, polarise the scattered light nearly completely, indicating that the sulphate ion is nearly isotropic optically. We