In the absence of neostigmine, a qualitatively similar neuromuscular block was caused by acetylcholine in about ten times higher concentrations. The observed changes of the membrane potential were only seen at the end-plate region and not in the nerve-free part of the muscle fibre. Concentrations of choline corresponding to the amounts of acetylcholine used had no detectable influence on the membrane potential or on the neuromuscular transmission.

It is concluded that prolonged neuromuscular block caused by acetylcholine in the sartorius muscle of the frog is not due to a persistent depolarization of the end-plate regions or of the adjacent membrane of the muscle fibres. The block is, on the contrary, characterized by a decreased sensitivity of the end-plate regions to the transmitter substance.

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Palatability of N-Oxides of Pyrrolizidine Alkaloids as a Factor in *Senecio* Poisoning

Recent chemical studies revealed that pyrrolizidine alkaloids are accompanied in the plants by their N-oxides[1]. In young growing plants, N-oxides may constitute more than 90 per cent of the alkaloid content, while in the autumn the proportion may be reversed[2].

Plants containing pyrrolizidine (*Senecio*) alkaloids have long been known to be responsible for poisoning livestock when present in pastures in various countries[3]. How the poisoning occurs is obscure, as animals usually refrain from eating poisonous plants. However, Theiler observed horses to consume fair amounts of *Senecio* plants in early spring.

During experimental studies on the induction of liver cirrhosis and primary liver tumours in rats treated with various *Senecio* alkaloids[4], administration of retrorsine, and of its N-oxide, isatidine, in drinking water disclosed a striking difference in the palatability of these two compounds. While rats abstained from drinking solutions of retrorsine containing more than 0·03 mgm./ml., they readily consumed tenfold more concentrated solutions of isatidine. As a result, high incidence of morbidity and mortality was observed among the young rats in the isatidine series, even though the isatidine treatment was discontinued after three weeks[5].

Isatidine acts insidiously, and may induce pathological changes several weeks or months after its administration. The following example illustrates this delayed action. Four young rats, weighing 65–70 gm., were injected intraperitoneally with isatidine, 4, 10, 28 and 40 mgm. per rat respectively. All survived at least four weeks, though the rats which received the two higher doses grew rather slowly, became anæmic and listless. The rat which received 40 mgm. of isatidine in a single dose died on the thirtieth day after the injection. It had œdema of the subcutaneous tissues, a pale, enlarged, fatty liver, and also pathological changes in the lung, spleen and pancreas. The rat which received 28 mgm. of isatidine developed bronchopneumonia, and was killed when *in extremis* on the forty-ninth day after the injection. It was very emaciated (weighed 90 gm.), had a dark, mottled, granular liver showing hæmorrhage and early fibrosis, and much hæmosiderin in the Kuppfer cells ; œdema of pancreas ; congested lungs with brown hæmorrhagic petechiæ, and some pathological changes in the spleen and kidneys. These organs as well as the mesenteric hæmolymph nodes gave a positive Prussian-blue reaction for iron-containing pigment. The two rats injected with the smaller doses of isatidine did not develop pathological changes during four months following the injections. Young rats similarly injected with retrorsine (5–15 mgm./rat) died in the course of one to three days after the injection, showing predominantly necrotic and fatty changes in the liver ; some had hæmorrhage into the stomach and small intestines.

These experiments seem to indicate that when young growing plants contain pyrrolizidine alkaloids in the form of N-oxides, they would be palatable and readily consumed by livestock, which may afterwards develop various pathological changes depending on the time of survival.

It remains to be shown whether the delayed pathological changes result from the action of the N-oxides as such, or from that of the respective alkaloids into which they may be converted by reduction in the animal body.

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Antibody Formation in Humans against their own Stored Red Cells

In the course of a study on factors that may be involved in the *in vivo* destruction of stored red cells, an experiment was performed which suggests that the antigenicity of red cells is altered when blood is kept for a long period of time under standard storage conditions, and individuals may be sensitized with such stored red cells.

In order to facilitate the presentation of the experimental work, the time of starting the experiment will be designated 'day 0' and the various operations will be referred to the starting day. 125 ml. of blood was withdrawn into 'Baxter'[1] bottles from ten healthy individuals ranging in age