vulsion in intoxicated rats was altered.

Conclusion. Dithiobiuret is an effective anti-convulsant in rats only when they are intoxicated. The site of action of dithiobiuret is within the central nervous system; the most probable site is the efferent system of the spinal cord.

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Specificity of Eczematous Hypersensitivity to P-Aminobenzoic Acid Butyl Ester ("Butesin").

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The present study was carried out on a 15-year-old boy who was originally seen for a contact dermatitis resulting from the application of butesin picrate ointment to a burn on the wrist. Routine patch test with the commercial ointment, which contains 1% butesin picrate, yielded a strongly positive reaction with marked reddening, edema and vesiculation.

Experimental and results. Patch tests were carried out in this patient with a series of related compounds in order to establish the range of specificity of this reaction. The materials studied were dissolved in triethanolamine in 2½% concentrations. The patches were removed after 48 hours and the reactions observed for another 48 hours.

Patch tests with a series of homologous p-aminobenzoic acid alkyl esters including methyl, ethyl, n-propyl, isopropyl, n-butyl, isobutyl, and amyl esters yielded positive reactions. Para-aminobenzoic acid and the alcohols which constitute the side chains of the esters yielded negative results. No reaction was obtained with the methyl ester of meta aminobenzoic acid.

Six commercial anesthetics which are derivatives of p-aminobenzoic acid with a tertiary amine in the side chain were tested with negative results. This series included procaine, larocaine, tutocaine, monocaine, butyn and pontocaine.

Eight local anesthetics, benzoic acid esters with a tertiary amine in the side chain but without an aromatic amino group, were tested.

TABLE I.
Effective Threshold Concentrations of *p*-aminobenzoic Acid Alkyl Esters.

Ester	Effective threshold concentrations
Methyl	$1 : 10^2$
Ethyl ("benzocaine")	$1 : 10^6$
Propyl	$1 : 10^8$
Butyl ("butesin")	$1 : 10^6$
Amyl	$1 : 10^6$
Isopropyl	$1 : 10^6$
Isobutyl	$1 : 10^3$

These were alypin, metycaine, stovaine, nupercaine, diothane, phenacaine, apothesine and intracaine. All gave negative reactions.

The 7 substances which elicited positive reactions were then tested quantitatively to determine threshold concentrations at which a just perceptible reaction occurs. (Table I)

The table shows that the sensitivity to the methyl ester was relatively low. The sensitivity increased with lengthening of the side chain to reach a maximum with the propyl ester. Further lengthening of the side chains resulted in a decreased sensitivity. The iso compounds caused in both cases considerably less reaction than the isomer n-compounds.

Discussion. There are only a few studies dealing with multiple epidermal sensitivity. In one group of the studied cases, contact dermatitis can be provoked in a rather haphazard fashion by a number of not closely related compounds.[1-4] In the other group, however, the sensitivity has a rather narrow

range within a well defined chemical configuration.[1,4,5,6] Such sensitivity patterns have been perfectly identical in different persons and therefore may be regarded as essential in the mechanism of the sensitization. In the group of procaine sensitive patients, for instance, 3 cases have been reported in which the sensitivity was restricted to those p-aminobenzoic acid derivatives which contain a tertiary amino nitrogen in the side chain.[4,6] The case herein described is similar to 3 cases reported by Schwarzschild[1] in which the sensitivity pattern was restricted to the alkyl esters of p-aminobenzoic acid. Schwarzschild reported in one case that the methyl ester of p-aminobenzoic acid caused considerably less reaction than the ethyl, propyl and isobutyl esters.

A repeatedly encountered feature of these group sensitivities is that maximum sensitivity is found not with the actually sensitizing compound but with one of the related homologues.[4,6] This was the case in the present observation. The patient was sensitized to the butyl ester but was 100 times more sensitive to the propyl ester with which he apparently never had contact before. The sensitivity patterns studied so far in eczematous reaction can be well explained by Pauling's theory of antibody formation.[7]

Summary. A case is reported with eczematous hypersensitivity restricted to alkyl esters of p-aminobenzoic acid. No reaction was obtained with substances deviating from this basic structure in the ring or in the side chain.

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Mydriatic Activity of Some New Synthetic Anticholinergic Esters.*

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Numerous publications during recent years have indicated that mydriasis and cycloplegia may be brought about by drugs that are primarily anticholinergic in action. Nyman[1] determined the relative mydriatic activity in man of various alkaloidal and synthetic substances. Scopolamine, l-hyoscyamine and atropine methyl-nitrate exceeded the activity of atropine whereas synthetic agents such as trasentine, euphthalmine and di-n-butylcarbaminoylcholine sulfate (dibutoline) are distinctly less active. Fromherz[2] found that the diphenylglycolic acid ester of γ-diethylamino-β,β-dimethylpropanol would produce maximum mydriasis in rabbits when instilled into the conjunctival sac in a concentration of 0.2%. Swan and White[3] have described the mydriatic activity of dibutoline

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