ties such as microphthalmia and colaboma were identified positively only in dissections or histologic preparations. The latter technics were also required to identify cardiovascular and internal genitourinary defects.

*Comment.* All azo dyes do not possess teratogenic properties. Gillman and collaborators have tested trypan red, Sudan IV, Bismarck brown and Niagara blue and found these compounds inactive as teratogenic agents. The present author has tested Niagara blue 4B and Congo red and likewise found both ineffective (unpublished data). Although several of these are closely related to trypan blue and azo blue, it is probably significant that of the substances tested only the latter two contain the diazotized ortho-tolidine group (3,3′-dimethyl-4,4′ diazobiphenyl) (Fig. 7).

*Summary.* The injection of 1 cc of a 1% aqueous solution of the diazo dye azo blue into female rats on the 7th, 8th and 9th days of pregnancy resulted in congenital malformations in 59% of living fetuses removed on the 20th day of gestation. The incidence was higher than that obtained with trypan blue (49%) under the same conditions, but the types of malformations were similar.

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Received January 26, 1954. P.S.E.B.M., 1954, v85.

## Reagents Modifying Stimulating Action of 2, 4 Dinitrophenol.* (20868)

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That 2-4 dinitrophenol (DNP) stimulates endogenous $O_2$ uptake and inhibits phosphorylation in living intact cells and their homogenates seems fairly well established(1). A wide variety of biological materials has been employed in arriving at such a conclusion. Certain differences in reaction of *intact cells* and their *homogenates* to the reagent, however, suggest the possibility of additional mechanisms entering into the above reactions. The present results have to do with a study of the action of DNP on the endogenous $O_2$ uptake of intact embryonic cells of the grasshopper (*Melanoplus differentialis*) and the effects of various reagents on such a reaction.

As previously shown from this laboratory (2), mitotically blocked intact embryonic cells respond to a greater degree than similar mitotically active ones. Such differential reactions to the reagent have also been pointed out for other tissues showing different degrees of metabolic activity(1). It has also been shown for intact embryos of the grasshopper that the concentration ($5 \times 10^{-5}$ M) of DNP producing maximal stimulation of endogenous $O_2$ uptake when added to the homogenate of the embryos produces no change whatever in its endogenous $O_2$ uptake. A somewhat similar situation has also been reported for the ova of the sea urchin(3). Since detergents are highly surface active compounds and have also been suggested to interfere with phosphorylation phenomena(1) it seemed desirable to determine their effects on the endogenous $O_2$ uptake of embryos and homogenates and also to see to what extent they might modify the stimulating action of DNP.

*Results.* In Table I are shown data for the effect of duponol and aerosol OT on the stimulating action of DNP on the endogenous $O_2$ uptake of intact diapause embryos. An inspection of this table shows that both detergents in appropriate concentrations completely antagonize the stimulating action of DNP. Determinations of phosphates have been carried out by the method of Sumner(4) and it is of some interest to note differences in the reactions of DNP and detergents on the labile phosphorus. With concentrations of DNP ($5 \times 10^{-5}$ M) the labile phosphorus

* Aided by grant from National Institutes of Health.

TABLE I. Effect of Detergents (Duponol, Aerosol OT) on Stimulation of Endogenous $O_2$ Uptake of Intact Embryos Due to DNP (Diapause Embryos in Ringer).

| DNP | Duponol, % | % of control $O_2$ |
|---|---|---|
| $5 \times 10^{-5}$ M | — | 196 |
| " | .01 | 172 |
| " | .05* | 100 |
| " | .10 | 60 |
| — | .05 | 100 |
| | Aerosol OT | |
| $5 \times 10^{-5}$ M | — | 196 |
| " | .002 | 196 |
| " | .020* | 100 |
| " | .10 | 49 |
| — | .020 | 100 |

* Concentration completely antagonizing stimulating effects of DNP.

(10-minute hydrolysis) of the intact diapause embryo drops to approximately 30% of the untreated control. Such a result indicates that in this reaction of DNP phosphorylation is markedly interfered with. Concentrations of 0.025% aerosol OT which completely antagonize the stimulating action of DNP cause no appreciable change in labile phosphorus of the intact embryo. It would seem, therefore, that perhaps some surface activity of the detergents seriously interferes with the stimulating action of DNP on the intact embryonic cells.

Other reagents and conditions which might possibly affect the stimulating action of DNP on the intact embryo have also been tested. Among them the following produced no effects: B.A.L., methylene blue, succinate, fructose, 1.6 diphosphate, ATP. Subjection of the intact embryo to high centrifugal forces so as to stratify without beaking the cells produced no change in the stimulating action of DNP. Intact embryos soaked in $5 \times 10^{-5}$ M DNP for 1½ hours, then washed 3× in Ringer, show no effects of the DNP on their endogenous $O_2$ uptake. Homogenates of embryos in DNP when added to intact embryos produce stimulation of $O_2$ uptake similar to that by DNP alone. Apparently DNP is held loosely by the embryonic cells and can readily be washed out.

In *summary*, one might reasonably assume that in addition to the stimulating action of DNP and its effect upon the phosphorylating system of the intact living embryonic cell, surface reactions may also play an important part in its reactions.

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Received January 28, 1954. P.S.E.B.M., 1954, v85.

## Effect of O-Methoxyphenylglycerol Ether (Resyl) on Spinal Reflex Arcs. (20869)

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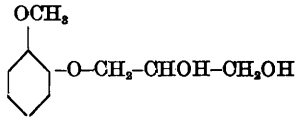
Recent studies indicated that o-methoxyphenylglycerol ether (Resyl) is of specific therapeutic value in the treatment of tetanus and as a muscle relaxant in anesthesia(1-6). This guaiacol derivative is chemically and pharmacologically related to Myanesin(2). However, according to Ginzel, Tschabitscher, and Wayand(5) it has less hemolytic effects than Myanesin in therapeutic doses, which is considered to be an advantage in its clinical use. An electrophysiological

Resyl: 


evaluation of the action of Resyl on spinal reflexes was conducted in view of the apparent