Entheogenic Effects of Ergonovine

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In 1932 the English researchers C. Moir and H.W. Dudley determined that aqueous extracts of ergot, the sclerotium of the parasitic fungus *Claviceps purpurea* (Fr.) Tulasne, manifested a strong uterotonic activity (Moir 1932). Such activity had long been attributed to ergot, but previous investigations had established this only in water-insoluble constituents, such as ergotamine. In 1935 a novel water-soluble alkaloid having uterotonic properties was isolated from ergot by four different laboratories working independently (Hofmann 1964). A. Stoll and E. Burckhardt of the Swiss pharmaceutical firm Sandoz named this alkaloid ergobasine (Stoll & Burckhardt 1935), Moir and Dudley called it ergometrine, M.S. Kharasch and R.R. Legault designated it ergotocine and M.R. Thompson gave it the name ergostetrine. By agreement of the International Pharmacopoeia Commission, the name "ergonovine" was adopted to replace these synonyms.

W.A. Jacobs and L.C. Craig of the Rockefeller Institute obtained lysergic acid and propanolamine as degradation products of ergonovine, and in 1937 Albert Hofmann of Sandoz succeeded in preparing ergonovine from lysergic acid and propanolamine (Stoll & Hofmann 1943). This was the first successful synthesis of an ergot alkaloid, and it opened the way to therapeutic use of ergonovine, which occurs in ergot only in trace quantities (Hofmann in press). From Hofmann's synthesis the structure of ergonovine was proven to be d-lysergic acid-L-2-propanolamide (Stoll & Hofmann 1943).

Ergonovine (Ergotrate®) quickly took a significant place in therapeutics as a hemostatic remedy in the treatment of post-partum hemorrhage. The oral dose employed in obstetrics varies between 0.2 and 0.4 mg of ergonovine maleate (Ermetrine®).

In 1977 and 1978 Hofmann reported that ergonovine maleate was entheogenic,[1] a surprising finding in view of its widespread use in obstetrics (Wasson, Hofmann & Ruck 1978; Hofmann 1977). This report was based on a self-experiment conducted by Hofmann on 1 April 1976, with 2.0 mg of ergonovine maleate taken orally. Hofmann reported that this dose manifested a "slightly hallucinogenic activity" lasting more than five hours.[2]

Hofmann's co-authors, R. Gordon Wasson and Carl A.P. Ruck later repeated his experiment with ergonovine taking the same dose, but they did not experience distinct entheogenic effects. Accordingly, it seemed advisable to repeat Hofmann's experiment with a higher dose of ergonovine maleate. We conducted a total of three experiments with the drug in the same pastoral setting, during August 1978.

9 August 1978 – 3.0 mg ergonovine maleate (J.B., J.O., P.N.) at 1520

Three of us ingested this dose of a slightly phosphorescent bluish solution of ergonovine maleate in

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water. Owing to our uncertainty of the outcome, one of us (C.T.) served as "guide." The solution was dropped into the throat via pipette. Within 15 minutes we began to feel lassitude, prompting us to lie on the ground looking up at the sky and the overhanging fir boughs waving in a slight summer breeze. The inebriation, and the lassitude, peaked within an hour. There were very mild visual alterations, characterized by perception of an "alive" quality in inanimate objects and a sensation that the air had more substance, making vision less distinct. While perambulating on the beach, watching the Fuji-like reflection of Mt. Rainier over the waters of Puget Sound, we all experienced mild leg cramps. Seven hours after ingestion these effects tapered off and we slept easily and fitfully, awaking refreshed in the morning. One of us (J.B.) experienced closed-eye eidetic imagery before retiring. The experiment left us convinced that ergonovine was psychoactive, but only J.B. was persuaded that the drug was entheogenic. We decided to repeat the experiment with a higher dose.

24 August 1978 — 5.0 mg ergonovine maleate (J.B., J.O., C.T.); 3.75 mg ergonovine maleate (P.N.) at 1925

Because of the low intensity of the effects experienced on 9 August, we decided to dispense with having a guide; accordingly all of us participated in this experiment, taking the drug just before sunset, by the same means as previously. Again, the first effects were experienced within 15 minutes. Again, we experienced lassitude and leg cramps, more pronounced than in the earlier experiment. The psychic effects were also more intense, particularly eidetic phenomena. Now it was clear to all of us that ergonovine was entheogenic. The course of the experiment was similar to its predecessor, with the effects lasting 8-9 hours followed by fitful sleep. The entheogenic effects, however, were very mild, while the somatic effects were quite strong. We had none of the euphoria characteristic of LSD and psilocybin experiences. The sedative effect was purely physical. In order to determine if "higher" states of consciousness alteration were possible, given the background of comparatively intense somatic effects we resolved to attempt a final experiment and to double the dose.

30 August 1978 — 10.0 mg ergonovine maleate (J.B., J.O.); 7.5 mg ergonovine maleate (P.N.) at 1635

The drug was ingested in the same manner, orally via pipette. At this level, the effects were manifested more rapidly. Within 15 minutes rapid alterations of consciousness commenced with visual effects comparable to a threshold dose of LSD or psilocybin. One of us (J.O.) described "flashes in periphery, ringing in ears, inner restlessness" 40 minutes after ingestion, and later noted "mild hallucinosis, cramps in legs." The physical effects were more pronounced this time. One of us (J.B.) felt the cramping in the legs as painful and debilitating. The psychic effects did not increase with the same magnitude as the somatic effects. Walking in this dreamy state was difficult due to leg cramps and slight incoordination. There was always a great desire to lie supine. For what seemed like hours, we lay on our backs atop a small pumphouse, watching fluffy cumulus clouds pass silently above us. The effects were still quite intense six hours after ingestion. One of us experienced abundant eidetic imagery, rapidly-changing, colorful geometric patterns, undulating, never still. We all had a slight hangover the following morning.

Our experiments corroborate Hofmann's report that ergonovine possesses entheogenic properties. We found the active dose to lie between 5.0 and 10.0 mg, peroral. It is interesting to note that Hofmann experienced distinct entheogenic effects at 2.0 mg, while Wasson and Ruck did not. Similarly, J.B. experienced distinct entheogenic effects at 3.0 mg, whereas J.O. and P.N. did not. This underscores the importance of metabolic individuality in the uptake and metabolism of mind-altering drugs.

The mild entheogenic effects of ergonovine are similar to those of LSD. However, in dramatic contrast to LSD, the somatic effects of ergonovine greatly overshadow its psychic effects, so much so that we had no wish to ingest more than 10.0 mg, despite the fact that the entheogenic effects of this dose were in no way overwhelming. With respect to entheogenic effects 10 mg of ergonovine maleate is roughly equivalent to 50 μg LSD-tartrate, that is, ergonovine possesses about 1/200th the entheogenic potency of LSD.

A related compound, 1-methyl-d-lysergic acid-(+)-2-butanolamide, produced by Sandoz under the trade names Sansert® and Deseril® (also known as Methysergide® or UML 491®) is a serotonin antagonist used in treatment of migraine. Sansert® has been shown to be entheogenic at doses of 3.5-7.5 mg, making it and ergonovine roughly equipotent (Abramson & Rollo 1967). As UML 491®, the drug has seen limited recreational use.

NOTES

1. See preceding paper for an explanation of this term.

2. In a 1955 study, ergonovine was compared to LSD and five other drugs in psychological experiments on human subjects. The dose employed was low, 0.65

mg, a sub-threshold dose for entheogenic effects. The subjects did perceive physiological effects, however, and mild psychic changes. See: Jarvick, M.E. et al. Comparative subjective effects of seven drugs, including lysergic acid diethylamide (LSD-25). *The Journal of Abnormal and Social Psychology* Vol. 51: 657-662, 1955.

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