

OBSERVATIONS ON AGARICS CAUSING CEREBRAL MYCETISMS

ROLF SINGER

(under collaboration of Dr. S. I. STEIN, and Dr. RALPH W. AMES,
and Dr. ALEXANDER H. SMITH)

(18.IV.1958)

Contents

Introduction, by R. SINGER, p. 261.

- I. An unusual effect from a species of Mexican mushrooms, *Psilocybe cubensis*, by S. I. STEIN, p. 263.
- II. The influence of temperature on mycelial growth of *Psilocybe*, *Panaeolus*, and *Copelandia*, by R. W. AMES, p. 268.
- III. A *Russula* provoking hysteria in New Guinea, by ROLF SINGER, p. 275.
- IV. About the identity of the "Weed *Panaeolus*" or "Poisonous *Panaeolus*", by R. SINGER & A. H. SMITH, p. 280.

INTRODUCTION

ROLF SINGER¹

After some preliminary studies on the so-called hallucinogenic mushrooms from Mexico published partly by this author alone and partly in collaboration with Dr. A. H. SMITH (1958), there is still a large number of mycological, physiological, biochemical and clinical observations to be published and some to be finished in order to give a complete and general picture of the biological side of the problem of cerebral mycetism and to create a basis which will enable us to proceed further in a series of investigations — mainly chemical, pharmacological, and neuropsychiatric — which wait for more abundant and more diversified plant material. In addition to the better known and amply described cases of "hallucinatory" mushroom action in *Panaeolus* and *Psilocybe* as well as in *Amanita muscaria*, there is a case of somewhat comparable usage of mushrooms which also cause cerebral mycetism — at least this is the conclusion which one must draw reading the respective accounts — in parts of New Guinea. For the first time, specimens have been sent of these so-called "hysteria-producing" mushrooms and the results of their analysis will be submitted here.

¹) Instituto Miguel Lillo, Universidad Nacional de Tucumán, Tucumán (Argentina)

The following four contributions are intended to throw some additional light on four aspects of the general problem of cerebral mycetisms. The respective questions have not been solved exhaustively, in any of the subjects, but I believe the observations are of some scientific and practical interest. In the case of Dr. STEIN's contribution, it is particularly interesting to see that the *Psilocybes* do not lose their physiological activity on human experimenters after prolonged cultivation in laboratory and greenhouses and that at least some significant portion of the substances responsible for the mycetism is preserved after heating to frying temperatures. The practical importance of Dr. AMES's contributions is self-evident, and will be followed up by nutrition studies on a wider scope. My own contribution puts mushroom hysteria where mushroom hallucinogens of Mexico had been by 1951, and much work would have to follow if this phenomenon were to be of similar attraction to applied scientists as were the Mexican *Psilocybes*. The note on *Panaeolus* is merely a small contribution toward the taxonomic problem of *Panaeolus* studies.

I wish to express my gratitude to Dr. LEON R. KNEEBONE, University Park, Pa., for his cooperation in the preparation of fruiting bodies of some of the significant agarics, particularly *Psilocybe cubensis* (plate 1), to Dr. ALFRED S. SUSSMAN for his continuous and most valuable help with advice in physiological problems and all kinds of courtesies, and to Dr. E. B. MAINS for his kind permission to use the University of Michigan Herbarium's facilities, as well as to Dr. K. L. JONES for his permission to use the facilities of the Department of Botany in the Natural Science Building for our purposes. Furthermore I wish to thank Dr. R. W. G. DENNIS of Kew Gardens Herbarium in England for the specimens turned over to me for study.

May I add that obviously all this work would have been impossible without the financial support given to us by the Bertram and Roberta Stein Neuropsychiatric Research Program Inc., Chicago, Ill.