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AD NUMBER
AD839627
NEW LIMITATION CHANGE
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FSTC-HT-23-115-68

U.S. ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER

AD339627



GERMFREE LIFE

COUNTRY: USSR

SEP 11 1968

TECHNICAL TRANSLATION

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TECHNICAL TRANSLATION

FSTC-HT-23-115-68

GERM-FREE LIFE

by

G. I. Podoprigora

Source: Priroda

No 1, 1968

p. 85, USSR

Translated for FSTC by ACSI

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GERM-FREE LIFE

PRIRODA, (Russian)
1968, No.1, p.85

G.I. Podoprigora.

In May 1967, our laboratory produced germfree animals, guinea-pigs in the first isolators of Russian make in the USSR. A few months earlier, the first germfree guinea-pigs were produced in our country in an isolator which the American Trexler designed for the Gamaleya Institute of Epidemiology and Microbiology of the USSR Academy of Medical Sciences (O.V. Chakhaeva, and M.V. Zenkevich).

The problem of a possible germfree living interested scientists for a long time. (Footnote 1: For more details see "The New Science of Gnotobiology", PRIRODA, 1966, No.11). Since it was detected that microorganisms play a role in digestion and in the elaboration of a few vitamins, the majority of scholars thought a germfree life impossible. Indeed, attempts to discover a germfree animal in Nature had been hitherto unsuccessful.

The idea of an artificial development of germfree animals occurred to Louis Pasteur in 1865. Ten years later, the thought of this genial scientist became a reality:-- in 1895, at the University of Berlin, G. Muttal and D. Tierfelder produced the first germfree animals in the world. Their publication bears the date of 24 June 1895. This date also became the birthday of a new branch of experimental biology, i.e., of gnotobiology.

Soon afterwards, other scientists continued many successful experiments to make germfree chicks, goats, and flies. These and the following experiments provided a convincing answer to the question whether life is a possibility without microbes. Further works in the technological field of germfree research chiefly improved the methodology described by the pioneers of gnotobiology.

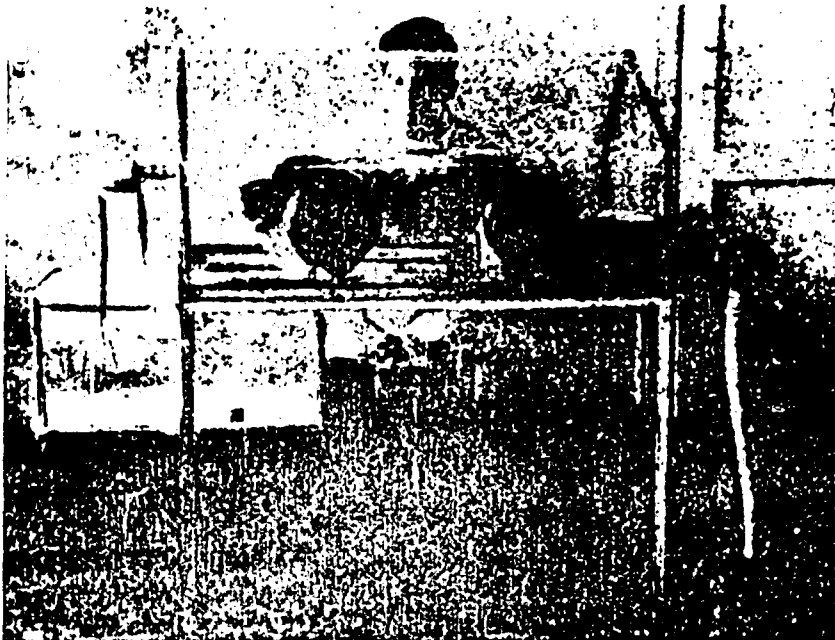
The first Soviet gnotobiotic isolator was manufactured in 1966 in the Laboratory of Experimental Biological Models of the USSR Academy of Medical Sciences (G.I. Podoprigora). Acrylic plastic sheets of various thickness were used as material (Footnote 1: See its outline in PRIRODA, 1966, No.11, p.23). Two variants were made for the isolator (operating and manipulating variant), and they were designed for the experimental production and maintenance of small germfree animals.

Extensive foreign experience with the use of plastic materials in germfree technology has proved the excellent quality and economic efficiency

of such materials. These materials ought to be introduced everywhere in the further development of Russian gnotobiotic technique.

The isolators recently suggested by the Czechoslovak scientists L. Mandel, and I. Travníček are of great interest. These authors used laminated glass plastic as material. Their isolators are distinguished by simplicity of make and low cost. The sterilization consists in spraying liquid disinfectants. In these isolators, the Czechoslovak scientists successfully study immune biological processes of germfree pigs. (Footnote 1: See L. Mandel, and I. Travníček: Gnotobiology in Czechoslovakia. PRIRODA, 1967, No. 7).

The material on two international symposia of gnotobiology (Moscow, 1966, and Japan, Nagoya, 1967) showed great advances in this new field of biological science. At present, gnotobiological laboratories exist in almost all countries of the world. The great importance of germfree investigations in the elaboration of the most diverse problems of medicine and biology (including also work on cosmic problems) urgently demands that Russia should pay a very serious attention to the development of gnotobiology in this country. In the near future, from their being just laboratory phenomena, such germfree animals should be transformed into experimental models accessible to research workers.



The first Soviet isolation chamber
made from acrylic plastic material.

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Security Classification

DOCUMENT CONTROL DATA - R & D

(security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author) Foreign Science and Technology Center US Army Materiel Command Department of the Army		2a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED	
		2b. GROUP	
3. REPORT TITLE Germfree Life			
4. DESCRIPTIVE NOTES (Type of report and inclusive dates) Translation			
5. AUTHOR(S) (First name, middle initial, last name) G. I. Podoprigora			
6. REPORT DATE 1968	7a. TOTAL NO. OF PAGES 2	7b. NO. OF REFS N/A	
8a. CONTRACT OR GRANT NO.	8b. ORIGINATOR'S REPORT NUMBER(S) FSTC-HT-23-115-68		
8c. PROJECT NO. 822362g 2301	8d. OTHER REPORT NO(S) (Any other numbers that may be assigned this report) ACSI Control Number		
10. DISTRIBUTION STATEMENT Each transmittal of this document outside the agencies of the U. S. Government must have the prior approval of the US Army Foreign Science and Technology Center.			
11. SUPPLEMENTARY NOTES The translation rights for this document have not been obtained. This document is not in the public domain.		12. SPONSORING MILITARY ACTIVITY US Army Foreign Science and Technology Center	
13. ABSTRACT In May 1967, the Laboratory of Experimental Biological Models produced germfree guinea-pigs in the first gnotobiotic isolator of Russian make. Germfree living seemed to be an impossibility until 1885 when Louis Pasteur conceived the idea of artificial production of germfree animals. The first such animals were obtained by German Scientists in 1895, the birth year of gnotobiology. Since then, life without microbes has been a possibility, and the technology of gnotobiosis advanced rapidly. Research on germfree life is conducted now in all countries of the world in view of the great importance of this biological field for medicine, biology, and cosmic science. The first Soviet gnotobiotic isolator, which is now in operation, was manufactured in 1966.			

DD FORM 1473

REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

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14	KEY WORDS	LINK A		LINK B		LINK C	
		ROLE	WT	ROLE	WT	ROLE	WT
	Gnotobiology Gnotobiotes Germfree life Microbeless life Isolator for gnotobiotes Artificial germfree animals Cosmic science and germfree life Laboratory of experimental biological models Biological models Lamininated glass plastic isolator Russian gnotobiology						

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SUPPLEMENTARY

INFORMATION

DISTRIBUTION AND AVAILABILITY CHANGES

IDENTIFICATION	FORMER STATEMENT	NEW STATEMENT	AUTHORITY
AD-839 627L Army Foreign Science and Technology Center, Washington, D. C. Rept. no. FSTC-HT- 23-115-68 1968	USGO: others to Army Foreign Science and Technology Center, Washington, D. C.	No limitation	USAFSTC ltr, 8 May 69