bodies which are formed abundantly on certain media. From these pure cultures were made and subcultures have been carried on through sixteen consecutive non-sexual generations, both by the single spore method and by ordinary transfers from one tube to another, without any variation in the appearance or nature of this strain. The mycelium in mass is a true albino or may at times take on a light flesh color.

Throughout an intensive study in culture covering thirty months' time, and employing every variation in condition that could be thought of as an influencing factor, there has been no ascus or sexual stage developed either in the normal or albino strain. With these facts in mind, it would seem that the phenomenon here reported can only be referred to some sudden change which occurred in the mycelium or conidia of the normal strain, and in any case has no connection with any sexual process.

The abruptness of this change, and the continual difference shown by contrasting cultures of the albino and the normal strain, is very striking. This change does not seem to fall into that class of somatic mutations so far reported in fungi which are usually described as a dwarfing or reduction of the development of the normal form, but it is a complete loss of the dark-color character which is typical for the normal original strain.

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A DAMP CHAMBER FOR MICROSCOPES

IN the study of cultures of mycelia of fungi it is desirable that they be observed under the 4 mm. objective of the microscope without disturbing the hyphæ by transferring them to a microscopic slide and making a fresh mount in the usual fashion. The type of damp chamber described below has been found especially adaptable to this purpose. It affords a chamber of considerable volume, with a humidity which is constantly near the saturation point, and of such a proportion that the greater part of the enclosed space may be observed through the 4 mm. objective.

This damp chamber is a modification of the one used by Blaauw in his recent work on the growth and phototropism of roots. It is made by using a large-sized microscopic slide, 2 x 3 inches, and a large-sized No. 2 coverglass, 45 x 72 mm., such as are used for making mounts of brain sections. These two pieces of glass are separated by several layers of filter paper, the central portions of which have been cut out, so that the filter paper is in the form of a frame about 5 mm. in width. Slits in this frame may be made for the purpose of ventilating the chamber, if such is desired.

The mount is made by placing the filter paper frame on the slide, then dropping a bit of nutrient agar just on the inner edge of the frame and inoculating it with the fungus to be studied. The large-sized coverglass is then placed over the filter paper and the mount is bound together with white linen thread and placed erect in a tumbler containing a little water. It is desirable that the mount be kept in a place which is slightly cooler than the room in which it is to be examined in order that the condensation of water on the inner surface of the coverglass may not interfere with observations.

This damp chamber has been found by the writer to be an excellent means of preparing mycelia of fungi for use in general courses in botany. Mounts so constructed can be used repeatedly in successive sections of the same or different classes. For this purpose only the low-power, 16 mm., objective is necessary and therefore the coverglass referred to above may be replaced by another large-sized slide, making the damp chambers much less expensive. The details of the structure of the hyphæ are well shown, the normal position in which they develop, and the streaming of the protoplasm in the hyphæ of Rhizopus, for example, are very distinct. Also the general form and arrangement of the fruiting bodies may be studied here.

By making a slit in the filter paper frame at one end, this damp chamber may be advantageously used for the study of roots and root-hairs. A seedling with a radicle a centimeter or more in length may be inserted in the slit and development allowed to proceed. This method of the study of root-hairs even under low power is found to be far superior

to the fresh mounts commonly used. The writer has found this damp chamber especially well adapted to the study of the relationship of fungous hyphæ to roots, both in the study of tropisms and in the actual observation of root-hair infections.

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THE COST OF GERMAN PUBLICATIONS

TO THE EDITOR OF SCIENCE: Apropos of the cost of German publications to Americans, it may be interesting to note the cost of membership in the Deutsche Chemische Gesellschaft (including subscription to the *Berichte* and *Zentralblatt*) to Germans and to others. The figures are computed on to-day's exchange rate:

United States		$23.00
England	115 shillings	25.56
France	305 francs	25.28
Belgium	316 francs	24.74
Italy	536 lira	24.55
Norway	176 kroner	28.09
Sweden	104 kroner	27.14
Denmark	124 kroner	26.60
Holland	69 gulden	26.71
Switzerland	91 francs	17.47
Germany	370 marks	.81

It will be noted that Americans fare better than any other nationals except the Swiss. It might be added that in 1921 the subscription for Americans was $16.00.

But do the Germans expect us to believe that the disparity between the cost to themselves and to others is, as was stated by the president of the Gesellschaft, due to the low value of exchange?

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QUOTATIONS

SCIENCE AND THE TROPICS

FROM the late Mr. Chamberlain onwards, successive colonial secretaries have shown a far-sighted appreciation of what science may do for the tropics. The London School of Tropical Medicine, inaugurated and fostered by the Colonial Office, is now a world-center of research and education in the diseases prevalent in warm climates and the measures for resisting them. In another column Sir Arthur Shipley, now happily restored to economic zoology from his arduous and successful tenure of the vice-chancellorship of Cambridge, describes the work of the Imperial Bureau of Entomology, a product of a research committee appointed by the Marquess of Crewe when colonial secretary, and firmly established by the late Viscount Harcourt and Viscount Milner. Its local habitation is rightly placed at the Natural History Museum, which contains the finest collection of insects in the world. It is in close touch with every part of the empire, receives, examines, and identifies specimens sent to it, and acts as a general headquarters in the war against insects, whose successful prosecution is almost a condition of human existence. A third very practical application of science to the needs of the empire, due to the initiation of Viscount Milner when colonial secretary, applies specially to the tropics. A College for the Study of Tropical Agriculture is to open its first session at St. Augustine, Trinidad, this autumn. Last year we were able to welcome the constitution of a governing body to carry out the details of the scheme. Sir Arthur Shipley, chairman of the governors, and his distinguished colleagues have selected a competent staff and devised practical courses extending over three years for a diploma, and shorter periods for training in special subjects or for postgraduate research. The island of Trinidad has provided the site and a handsome grant towards the erection of the buildings, which are now complete. Private persons and commercial companies interested in tropical produce have made benefactions, and other West Indian islands are to contribute towards maintenance. But the benefits of the college in Trinidad will radiate far beyond the Antilles. The conditions of soil and climate which favor the luxuriant growth of tropical fruits, vegetable oils, rubber, and woods also favor the growth of animal and vegetable pests. Insects and moulds which no more than maintained existence in the jungle proliferate under the conditions of cultivation. Much can be done towards identifying and studying these in the museums and laboratories at home, and something also towards the devising of treatment.