

substratum of the gonad. This conclusion seems at first sight paradoxical and at variance with the widely held belief in the continuity of the germ plasm. It seems that the sex of the germ cells is not determined by genetic factors passed directly from the zygote through a series of germinal cell generations. But in species with genotypic sex determination, the sex-determining influence appears to pass first to the somatic tissues, which in turn induce the sexualization of the germ cells. In species in which there is a balanced genotypic sexuality (intersexuality), sexualization of the germ cells is likewise probably due to influences originating within the organism or from the external environment and acting always through the somatic substratum of the gonad.

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## Use of Dibenzylphosphoryl Chloride for Phosphorylations

ABOUT ten years ago, one of us (A. D.), at the suggestion of Dr. P. Eggleton, began experiments on the synthesis of some biologically important phosphorous compounds at the Physiology Department of the University of Edinburgh. In the course of these experiments, the chloride of dibenzylphosphoric acid was prepared and its usefulness proved in preliminary experiments. This work had to be broken off and could not be resumed until recently.

In the meantime, L. Zervas<sup>1</sup> has introduced the silver salt of dibenzylphosphoric acid as a phosphorylating agent; he considers the chloride too unstable for convenient use in phosphorylations.

We find that the chloride, prepared according to our original procedure from the potassium salt of dibenzylphosphoric acid with thionyl chloride in chloroform, is sufficiently stable for preparative use in phosphorylations. Guanidine dibenzylphosphoric acid can easily be prepared by shaking the chloride with a 25 per cent guanidine solution. Within a few minutes the oily chloride disappears and a solid is precipitated. After filtration and washing with water, the crude product is recrystallized from alcohol-ether; m.p. 166.5–167.5° C.; yield 80 per cent. By hydrogenation with a palladium catalyst, guanidinophosphoric acid is obtained. We have prepared a number of substituted amino- and guanidinophosphoric acids and are at the present time occupied with experiments on the phosphorylation of hydroxy-compounds.

When treated with a cold dilute potassium hydroxide solution, dibenzylphosphoryl chloride yields the tetrabenzylester of pyrophosphoric acid in good yield; m.p. 59–60° C. The substance is insoluble in water, soluble in alcohol and ether and

decomposes with warm alkali to form dibenzylphosphoric acid. Our attempts to prepare tribenzylpyrophosphoric acid by partial saponification or hydrogenation of the tetrabenzylester have hitherto been unsuccessful.

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<sup>1</sup> Zervas, L., *Naturwiss.*, 317 (1939).

## Air Photography in the Far East

THE recent article<sup>1</sup> by Wing-Commandr. Hamshaw Thomas is very timely. I have recently been attached to H.Q., S.E.A.C., so I have had considerable opportunity of seeing the part played by air photography in that region. When the time comes for the full story to be told, it will be found that many of the applications are likely to be those described in the recent article. My present purpose, however, is to put on record a plea for the continuation of R.A.F. air survey in the tropics as well as in England. The need in the Far East is even greater than in Great Britain, because many of the tracts of country are almost inaccessible. One need scarcely say that the governments concerned, for example, India, Ceylon, Malay and Burma, are fully aware of the great value of air survey, but too often decisions are made in Great Britain by people who are not familiar with the needs elsewhere. Here one may refer to the aerial surveys carried out for the forest service in Burma, for example, Irrawaddy and Lower Tenassarim, between the two Wars, though for present-day purposes these were on a small scale. There has also been great improvement in technique since these surveys were carried out, and much of the work must require repetition.

One or more units of the R.A.F. ought to be maintained in the Far East and their work made available to the resident scientific men and government departments. In this connexion also it is to be hoped that the vast collection of photographs now accumulated in the Far East will not be destroyed but made available in the near future to men of science for study. Finally, there is not only the question of the continuance of air survey, but there is also the problem of service photographic research. It is highly desirable that this should be continued, not only in Great Britain but also in the tropics. Conditions for photography are obviously completely different in the tropics, and we have by no means fully mastered them. They cannot properly be overcome by simulating tropical conditions in Britain, and it is most important that a photographic research unit should be set up and maintained in either India or Ceylon. This unit could operate as an out-station of the main research centre in Britain. During the course of their investigations, if there is proper co-ordination between them and local scientific men and local needs, much useful work could be done. This type of peace-time co-ordination is already in evidence at the army photographic research centre in Wiltshire. It is to be hoped that the R.A.F. will follow suit.

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<sup>1</sup> Thomas, H. H., *Nature*, 158, 409 (1945).