Comments and Communications

Two New Organic Rhenium Compounds

Two new compounds not described in the literature have been prepared by reacting at room temperature potassium chlororhenite dissolved in 4 N hydrochloric acid with the hydrochlorides of diethylaniline and diethylamine.

The diethylaniline complex has a temperature of decomposition of 188° C. The crystals of this complex (dark green or microscopic light gray-green) are soluble in water and HCl but insoluble in absolute alcohol and in anhydrous ether.

The diethylamine complex has a temperature of decomposition of 210° C. The blue-green crystals of this complex are also soluble in water and in HCl but insoluble in absolute alcohol and in anhydrous ether.

$ReCl_4$ $[C_6H_5 \cdot N(C_2H_5)_2]_2 \cdot 2HCl$ contains	Re	N	Cl
	25.6	4.01	30.4
Found	27.0	4.04	30.7
$ReCl_4$ $[C_2H_5)_2 \cdot NH]_2 \cdot 2HCl$	34.0	5.12	38.9
Found	34.4	5.16	38.7

Evidently the two compounds have the compositions indicated.

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Statement Recommending the Establishment of an International Biological Control Organization

The following statement from P. Vayssiere, secretary-general of the International Union of Biological Sciences, has been transmitted to us by Stuart Mudd, of the University of Pennsylvania, secretary of the Union:

The entomologists, representing 10 nations, gathered at Stockholm for the purpose of a symposium on the scientific basis of an international organization for biological control, knowing that the promotion of world peace, international understanding, and the welfare of peoples is the aim of UNESCO and AFO, bring to the attention of these powerful international organizations the opportunity and urgent need to achieve this aim, in part, by providing facilities for the development of basic research on biological control which will lead to the greatly extended use of natural enemies to control insect pests and noxious weeds, so helping to conserve world food resources.

To strengthen this resolution, the members of the symposium draw attention to the following important considerations:

(1) A great loss of human food is caused by the depredations of insect pests and the competition of weeds. To ease the world shortage of food every effort must be made to reduce this loss to the lowest possible level.

(2) The use of insecticides has proved a powerful means of reducing loss. However, this method involves the continual expenditure of money and labor, and it has proved too expensive for use against the pests of many crops. Moreover, it is sometimes dangerous to man and domestic animals; and it may also directly damage the crops it is used to protect, or do so indirectly either by causing the accumulation of toxic substances in the soil or by destroying the natural enemies of the pests. A further disadvantage is that the intensive use of chemical methods of control frequently leads to the selection of a strain of the pest that is resistant to such control.

(3) The utilization of natural enemies for the control of insect pests and weeds is the most economical method once the natural enemies are established, for no further expenditure of money or labor is then required. Furthermore, it is the only practicable method when the cost of control by chemical methods is prohibitive and when available labor is insufficiently skilled or reliable to apply insecticides.

(4) It is clear that natural enemies could be used much more widely than they are at present, even though it is admitted that biological control cannot take the place of insecticides or herbicides for the control of every insect pest and weed. However, in their efforts to extend the field of biological control, entomologists are handicapped by their meager knowledge of the important natural enemies that exist in various parts of the world.

(5) To secure the necessary additional information some form of international organization is essential, for the biological control of insect pests and weeds in any one region is effected by introducing natural enemies from other regions. Consequently the information required by any one country can be obtained only by research in other countries; and therefore such research must necessarily be handicapped if organized on a national basis.

To deal with the situation outlined above, international action can and should begin at once, by setting up an organization providing the following services: (1) a documentation service for the collection of pertinent information from all possible sources, and its dissemination to all interested organizations and individuals; (2) a taxonomic service to deal with the identification of natural enemies; (3) a survey service to study the natural enemies existing in the major regions of interest; and (4) an application service, devoted to collecting, breeding, transporting, and acclimatizing natural enemies and establishing these in regions where the nations concerned are unable to undertake this work themselves.

It is considered that the personnel of the taxonomic service should be stationed at existing major centers of taxonomic investigations and that the documentation service should be associated with one of these groups of taxonomists. For the survey service, groups of investigators should be stationed at appropriate centers, where

special laboratory facilities will need to be provided. The formation of the application service should not be undertaken until the rest of the organization has been well established.

The keystone of the proposed organization is the taxonomic service. Because of the dearth of competent taxonomists it will not be possible to staff it adequately until more young men are persuaded to undertake such work. To attract them, permanent posts carrying adequate remuneration must be created, and, in addition, the organization must be prepared to undertake the cost of the specialized training (and probably the training itself) of the young men selected.

The proposed international organization is viewed as an extension to other countries of the kind of work already being carried out by the United States of America and the British Commonwealth, the organization working in cooperation with all institutes and individuals actively carrying out biological control work.

Action Potentials From Single Auditory-Nerve Fibers?[1]

We have in two published communications (*J. Neurophysiol.*, 1943, 6, 39–58; 1944, 7, 287–304) stated, directly or by implication, the following propositions:

(1) It is possible to isolate action potentials from single auditory-nerve fibers of the cat by using microelectrodes.

(2) Inhibition of activity in these fibers, produced by acoustic stimuli, occurs through a neural mechanism which does not include a synapse, *i.e.* one which presumably acts at the level of the hair cell in the cochlea.

Throughout our experiments on the cat nerve we were disturbed by the difficulty experienced in isolating the response of one fiber in a bundle of thousands of them; on occasion as much as a half-day of careful, continuous probing with the electrode was required before a successful position could be obtained (see *J. Neurophysiol.*, 1943, 6, 41). On the other hand, a contact once established was unexpectedly easy to maintain despite minor mechanical disturbances of electrode or preparation.

We can now supply a piece of important elementary information, inexcusably omitted from our earlier study, which bears upon these problems. We have recently examined the auditory nerve of the cat microscopically, in sections kindly provided by Dr. M. H. Lurie.

The auditory nerve in the stretch from the internal meatus to the medulla contains nerve cell bodies. These cell bodies are present throughout the region into which our microelectrode was ordinarily placed. They vary considerably in number but may amount to as many as 45 per high power field (about 0.1 mm^2). Standard anatomical works thus far consulted do not describe these typical ganglion cells; they probably belong to the cochlear nucleus and are therefore second-order neurons in the auditory tract, although this has not been established with certainty.

There is, therefore, very good reason to believe that most, if not all, the potentials we have described were derived not from the auditory nerve but rather from cell bodies of second-order neurons. If this indeed be true, both of the propositions at the head of this note are incorrect. The first of them needs no further comment. The second, which deals with a peripheral inhibitory mechanism, will probably be discarded gladly by most neurophysiologists. If the potentials were obtained postsynaptically, the observation of inhibition of second-order neurons is interesting but not surprising.

All of our description of single-unit activity in the auditory pathway remains unchanged. The interpretations must be altered, however, to the extent to which we recorded the activity of second-order instead of first-order neurons.

We wish to acknowledge the gentle obstinacy of Dr. H. K. Hartline, who originally suggested we look for ganglion cells in the nerve, and who has never let the matter rest.

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[1] This research was carried out under contract with the U. S. Navy, Office of Naval Research (Contract N5ori-76, Project NR147-201, Report PNR-61).

On Obtaining Books From Germany

Dr. Julian Huxley writes:

"Students of biological evolution will, I think, be interested to hear something about the new book by Dr. Bernhard Rensch, *Neure Probleme der Abstammungslehre*, published by Ferdinand Enke Verlag (Stuttgart, 1947), which I have recently received and read.

"It appears to me to be a most valuable work, which treats of the method, and especially the course, of evolution in a comprehensive way. Its most original feature is the number of tables it contains, giving quantitative expression to various rules of evolution. It is also interesting in that the author, though working in complete isolation during the war, has arrived at conclusions in general similar to those reached by American and British specialists in the subject during the same period.

"It may be also useful to set forth the methods by which this, and other German books, may now be obtained. Anyone wishing to purchase books published in Germany may do so by placing his order through any bookseller, who may then apply directly to the publisher in Germany. The transaction is administered through the Joint Export and Import Agency of Military Government, and payment can be made in the currency of the country in which the original order is placed. The delay in obtaining the book may be a matter of some weeks or, of course, considerably longer if the publisher has not previously obtained a license for export from the Joint Export and Import Agency. However, many publishers who foresee a demand outside Germany for a particular book will have obtained the required license soon after the appearance of the book in Germany."