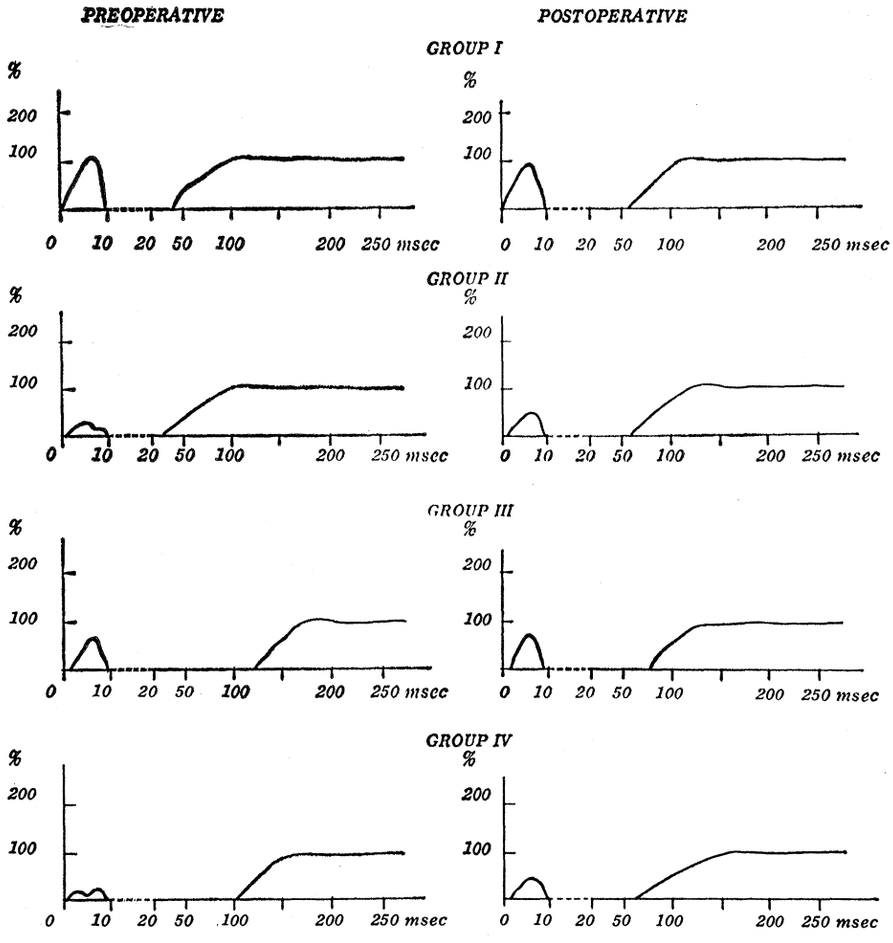

Fig. 5. Comparison of facilitation and recovery curves before and after cryothalamectomy.

the ventrolateral and ventro-posterolateral nuclei of the thalamus (Fig. 5). (Recordings of these curves during surgery constitute a separate study.) This comparison demonstrated that such lesions restored to normal, or near normal, both the facilitation and recovery curves of these patients. The degree of restoration of the monosynaptic reflex to normal correlates with the amelioration of the clinical motor signs of Parkinsonism.

When trying to correlate the electromyographic findings regarding the monosynaptic reflex with the clinical picture of a random group of Parkinsonian patients, we observed that severe rigidity usually accompanied fast recovery curves that suggested hyperexcitability of the lower motor neuron. Slow recovery curves were recorded in patients who showed severe balance problems.

The facilitation curve was low in patients with clinical evidence of muscle wasting (thenar eminence and interossei muscles of hands) and with autonomic disturbances. Facilitation curves were high in patients with severe tremor, some of whom demonstrated exaggerated tendon jerks and hyperactive stretch reflexes.

In summary, electromyographic studies of the monosynaptic reflex in 70 Parkinsonian patients and in 12 normal subjects indicated that the former are characterized by four types of abnormal facilitation and recovery curves that correspond with variations in the clinical syndrome. Cryosurgical lesions in the ventro-lateral and ventro-posterolateral nuclei of the thalamus restored essentially normal facilitation and recovery curves; this indicates that lesions of these thalamic nuclei, which relieve tremor and rigidity of Parkinsonism, also tend to restore normalcy of the monosynaptic reflex in such patients.

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Pogonophora: Living Species Found off the Coast of Florida

Abstract. *A population of pogonophorans, consisting of species attributable to at least four genera and living at a depth of about 200 meters in an accessible locality off south Florida, has been discovered.*

Members of the phylum Pogonophora have been reported from the Western Atlantic only by Bayer (*1*), Wigley (*2*), and Southward (*3*). The last two reports dealt with material from depths of 366 and 567 meters on the continental slope south of Martha's Vineyard, Massachusetts; a deep, cold-water habitat characteristic of the animals. Bayer, however, reported specimens from relatively shallow water off the coast of Florida, a rather unusual site. Unfortunately, that material was scanty and consisted only of tubes, the worms themselves having disintegrated. Dredgings made off Miami Beach, Florida, during April 1965 revealed abundant living material of several species in muddy bottom at a depth of about 200 meters, with temperature about 8°C in the mud. Thus far, four genera have been recognized in collections made on several occasions since the initial discovery: *Oligobrachia, Nereilinum, Siboglinum*, and a new genus of the family Lamellisabellidae. Preliminary examination of the living specimens indicated that the species concerned are new.

The discovery of several species of pogonophorans, one of them quite large, in a readily accessible location a short distance from a marine laboratory provides a source of living material that is indeed unique. Initial attempts to main-

tain the animals alive in the laboratory are encouraging. Experimental work on the biology of these animals, heretofore virtually impossible, should now become a practical matter. Techniques are now being developed and physiological investigations are beginning at the Institute of Marine Science, University of Miami. Because the tubes of many individuals contain living larvae, a source of material for developmental studies is likewise available.

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Airborne Particulates in Pittsburgh: Association with p,p'-DDT

Abstract. *The DDT associated with samples of airborne particulates was measured by gas chromatography. Because of possible vaporization of DDT during sampling, concentrations reported represent minimum values but demonstrate that DDT can be present in an urban atmosphere that is distant from any large-scale agricultural activity.*

Acree, Beroza, and Bowman (*1*) demonstrated that there is significant codistillation of DDT with water at 25° to 35°C. More than half of DDT in aqueous suspension (0.001 to 0.100 ppm) at 25°C was lost in 1 day by this mechanism. Because of the codistillation of DDT with water in the use of insecticides and the disappearance of DDT from the soil (*2*) and the coats of treated livestock, we undertook this study to determine the amount of DDT associated with airborne particulate pollutants in Pittsburgh air.

Air samples were collected on the roof of the Graduate School of Public Health in Pittsburgh at intervals from June to December 1964. A two-stage sampling system described by Shanty and Hemeon (*3*) was used to separate airborne dust into two fractions which deposit in the upper and lower respiratory tracts. Particles which would be trapped in the nasopharyngeal chamber of deposit in the upper respiratory tract of man are collected by sedimentation on 71 horizontal trays. Particles which penetrate through this section of the sampler are collected on an MSA 1106B glass fiber filter; these particles deposit in the lower respiratory tract, terminal airways, or alveoli in man. The latter fraction of particulates is referred to as "respirable" and is presumed to represent the risk to health, if any, of persons breathing the materials (*4*). Each sample of particulates was obtained by continuous sampling at an average rate of flow of 1.22 m^3/min, the range being 0.86 to 1.34 m^3/min, for 14 consecutive days and nights. The larger particles were washed from the trays with benzene, which had been purified by distillation through a column containing 27 theoretical plates. The purified benzene, when analyzed by gas-liquid chromatography at the conditions given below, exhibited no peaks in the area of interest. The washings were collected in a large evaporating dish, filtered, and then reduced to a volume of 2 to 3 ml by evaporation at reduced pressure. The filter with collected particulates was extracted with benzene in a Soxhlet extractor for 15 hours. The extractant was filtered and concentrated to a volume of 2 to 3 ml by vacuum evaporation on a heated water bath. Samples were then stored in the absence of light to eliminate the possibility of chemical interaction catalyzed by ultraviolet light (*5*). Sample analyses were performed in an F & M model 810 gas chromatograph with an electron-capture detector (*6*). The detector, injection port, and oven temperatures were 200°C. A glass column (4 mm inside diameter) packed with SE-52 (3.8 percent by volume) on Diatoport S was used. The pulse rate was 150 μsec, and a mixture of 95 percent argon and 5 percent methane was the carrier gas. Portions (0.1 μl) of the benzene concentrates were introduced to SE-52 columns by on-column injection. Sample chromatograms were compared with chromatograms of purified DDT prepared by recrystallization of technical grade material from ethanol. The chromatograms of benzene extracts of particulate samples which were characterized by peaks which coincided with *p,p'*-DDT also showed at least one other peak, characteristic of either DDD [1,1-bis(*p*-chlorophenyl)-2,2-dichloroethane], DDE [1,1-bis(*p*-chlorophenyl) 1,1-dichloroethylene], or *o,p'*-DDT [1-(*o*-chlorophenyl)-1-(*p*-chlorophenyl)-2,2,2-trichloroethane], which had relative retention times of 0.47, 0.64, and 0.78, respectively. A value of 1.0 for *p,p'*-DDT (DDT) was used as the standard. Only peaks characteristic of *p,p'*-DDT were quantitatively assessed.

Table 1. Concentrations (μg/1000 mm^3) of *p,p'*-DDT associated with suspended particulate matter in Pittsburgh air in 1964.

Sample period	Particulate	
	Respirable	Nonrespirable
6/22 to 7/6	0.00	0.10
7/6 to 7/20	1.14	1.22
7/20 to 8/3	0.23	<*
8/4 to 8/18	.06	<
8/31 to 9/14	<	<
9/15 to 9/29	0.13	<
10/2 to 10/16	.10	<
10/19 to 11/2	<	<
11/3 to 11/17	<	<
11/18 to 12/2	0.11	<

* The symbol, <, indicates less than a detectable amount.

After chromatographic analysis of two of the samples, the remainder of the benzene extract was evaporated under vacuum, recrystallized from hot ethanol, filtered, and made up to 100 ml with isooctane. Absorbances at 216 to 320 mμ by the sample were determined with a Beckman DB spectrophotometer with cells of 40-mm path length. An absorption band from 232 to 238 mμ was obtained, which is the principal absorption band reported for *p,p'*-DDT (*7*). Standards prepared from purified DDT were characterized by this absorption band and peak.

The results of the analysis are shown in Table 1. Because of the vaporization of *p,p'*-DDT that occurs during the sampling period, the concentrations reported here must be regarded as minimum values, and only demonstrate that airborne DDT can exist in a heavily industrialized urban area. Tabor (*8*) reported higher minimum concentrations of airborne DDT in agricultural communities (range up to 23 μg/1000 m^3, mean = 5 μg/1000 m^3). Our results also suggest that condensed liquids, adsorbed or absorbed by suspended particulates, are present in larger quantities in association with the smaller particles. Similar results were obtained when the association between suspended particulate matter in Pittsburgh and polynuclear aromatic hydrocarbons was studied (*9*). The respirable particulate fraction of Pittsburgh air has been consistently lower in weight than the nonrespirable fraction of the same sample, but the specific surface (cm^2/g) of particulate