ogy and Psychiatry will be held in Rome next April, when the following subjects will be discussed: (1) aetiology, diagnosis and prophylaxis of delinquent minors; (2) prophylaxis of criminality and penal laws; (3) the fundamental principles of biology and criminal biotypology; (4) prophylaxis of crime. Visits will be paid to the more important modern penitentiaries and institutions for the prevention of criminality and the reeducation of delinquents. The general secretary of the congress is Professor B. di Tullio, via Giulia 52, Rome.

THE Laboratory Section of the American Public Health Association is anxious to collect any documentary material relating to the early history of the section, which was organized in Minneapolis in 1899. Letters, programs and biographical notes concerning members, particularly regarding the officers during the first five years of the organization, are especially desired. The section would appreciate it if any such material could be sent to the archivist, Dr. Augustus Wadsworth, director of the New York State Laboratories, New Scotland Avenue, Albany, N. Y.

DISCUSSION

DOES THE "RADIO ACT" HAMPER RESEARCH?

IN answering inquiries based on the final paragraph of my recent discussion[1] in SCIENCE, a member of the Federal Communications Commission excuses the noncooperative activities of that body by claiming that changes must be made by Congress in the Communications Act before the commission can alter the disputed paragraphs in its own regulations. Though appreciating the friendly attitude which the commission has maintained during the discussion we contend that the commissioners are merely renewing an old army game called "passing the buck."

The needless interruption of a legitimate research enterprise is of serious consequence to all scientists. In the sincere hope that a clear discussion of the present difficulty may lead to improved governmental cooperation in the future, we wish to summarize our own view of the controversy, as follows:

(1) The commission fully admits the engineering merits of our highly-specialized radio equipment. From a technical standpoint there has been no dispute in regard to the suitability and complete safety of our method of operation. The transmitter has been thoroughly tested during many months of normal service and the operating frequency has remained stable within 0.002 per cent. The monitor device would immediately shut down the entire station if the frequency should shift by a very slight amount. Failure in other parts of the circuit might suppress the signal but could not cause faulty modulation. At all times the operation of the transmitter has been observed and automatically recorded by a monitor receiving set.

(2) We have never had any intention of dispensing with human operators and have never suggested the slightest relaxation in the strict regulations which prohibit the use of transmission apparatus by *unlicensed* persons. *Three operators,* holding commercial licenses properly issued by the government, are salaried members of our laboratory staff. They perform all services in supervising the equipment. We contend that the government is utterly unreasonable in asking us to disrupt all other research activities in order to keep any one of these men on duty at times when human intervention is clearly unnecessary and useless.

(3) Section 318, Title III, of the Communications Act of 1934 reads as follows:

> The actual operation of all transmitting apparatus in any radio station for which a station license is required by this Act shall be carried on only by a person holding an operator's license issued hereunder. No person shall operate any such apparatus in such station except under and in accordance with an operator's license issued to him by the Commission.

The context plainly indicates that this clause was inserted by Congress in order to protect the public from interference caused by the abuse of radio equipment in the hands of irresponsible or unqualified persons. We consider that the phrasing is excellent and we have no desire to modify it in any way. We also contend that our method of operation satisfies the spirit and the letter of this law to the fullest possible extent. Licensed operators completely predetermine every single dot which our apparatus emits, *whether they are actually present in the operating room when that dot leaves the antenna or not.*

(4) Our prolonged negotiations with the commission may be outlined briefly:

In June, 1934, after many months of successful, 24-hour daily operation, Secretary Herbert L. Pettey suddenly took cognizance of our semi-automatic method of operation and peremptorily ordered us to keep an operator in uninterrupted attendance, regardless of engineering necessity. Pointing out that this would involve prohibitive expense, would serve no purpose and would thoroughly disrupt our experimental program, we requested special authorization to con-

[1] H. R. Mimno, SCIENCE, November 29, 1935.

tinue normal research until the purely legalistic aspect of the matter could be examined. Though no fault had been found with the apparatus or the emitted wave, this concession was refused, and we therefore suspended all research in this field.

On November 12, 1934, after much correspondence, the whole matter was referred to a member of the legal staff of the commission, *who stated emphatically that our interpretation of the Radio Act was completely correct in every respect.*

On the basis of this opinion, the engineers of the commission requested me to prepare suggestions for a new clause in the regulations designed to recognize the special requirements of ionosphere observatories. In view of the long interruption which had already occurred, the engineers agreed to proceed as rapidly as possible and estimated that we could resume normal operation within three weeks. Our suggestions were prepared immediately.

On February 9, 1935, the proposed amendment was still "under consideration."

On April 27, we discovered for the first time that Counsel Spearman and Commissioner Stewart had overruled the previous legal opinion. Their opposition was frankly largely based upon apprehension lest the use of semi-automatic apparatus in research involve the commission in disputes over the use of unattended equipment in commercial communication. Mr. Stewart therefore requested specific suggestions which would enable the commission to discriminate between the two cases. We immediately prepared a detailed statement pointing out that we are not engaged in any form of communication, and that our transmission is completely determined at all times by our licensed operators. On the other hand, the commercial stations are clearly engaged in some form of point-to-point or broadcast communication. Uninterrupted supervision by licensed operators could logically be demanded in order to prevent the use of profane and obscene language, even if the commercial stations could match the highly specialized protective equipment necessitated by our research problems. We have received an acknowledgement of our letter, but no reply to our detailed suggestions as yet.

In any case, this aspect of the matter clearly involves a question of administrative expediency and not fundamental law. We must therefore conclude that the present attitude of the commission is based on an instinctive desire to preserve the *status quo* at any cost and that this desire hampers scientific research unreasonably.

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COFFEE AND CACAO IN SOUTHERN FLORIDA

RECENT experiments have shown that conditions for normal growth and fruiting of coffee and cacao can be provided in southern Florida, not in open field plantings but sheltered by larger trees, as in gardens, courts or dooryards. Even with no indication of commercial production being feasible, many residents and winter visitors in Florida are attracted to the more tropical crops, not grown elsewhere in the United States, and often have time and money to use in local experiments. The amateur plantsmen are recruited from many lines of experience in other regions as farmers, horticulturists and botanists, teachers, merchants, manufacturers, chemists, technologists and inventors, so that attention may be given not only to the culture and breeding of coffee and cacao, but also to processes of fermentation and curing, which may largely determine flavors and commercial values. Miami is becoming an educational center with special facilities for tropical plant research and training of tropical experts.

Coffee is a handsome spreading shrub or small tree, with shining laurel-like leaves, fragrant white flowers and clusters of crimson berries, while the "chocolate-tree" is remarkable for its habit of cauliflory, bearing its small star-like flowers and large gourd-like fruits along the naked trunk and larger limbs, not on the new growth with the leaves. Both trees are outstanding examples of dimorphic branching, but are specialized on different lines that serve well for comparative study as an introduction to this strangely neglected field of botanical science. The vegetative adaptations of plants eventually may be recognized as not less significant than the floral adaptations that have had so much attention.

Shade-trees and cover-crops are used with coffee and cacao in most of the tropical countries, and are especially needed in Florida. Thin soils and strong trade-winds rapidly intensify drought conditions, so that emergency watering is necessary, though less is required in protected cultures. As a soil cover, the Sarawak bean, *Phaseolus hosei,* a small-leaved creeping plant from the Malay region, was recommended by the late Edward Simmonds, and has proved entirely satisfactory. The conditions of wind and soil protection that were found necessary for raising Hevea rubber trees at the Plant Introduction Garden a few miles below Coconut Grove, Florida, as stated in SCIENCE of May 3, 1935, also have produced the most normal and fruitful young trees of coffee and cacao, some of them flowering and fruiting in the second season.