

Association; I. Lorge, Teachers College, Columbia University. The invitation of Vassar College to hold the annual spring meeting of the branch in April, 1937, at Poughkeepsie, N. Y., was accepted.

The program occupied three morning sessions and three afternoon sessions. The topics of the sessions were: "Sensation and Perception," "Comparative Psychology," "Mental Testing," "Physiological Psychology," "Child and Abnormal Psychology," "Memory and Learning."

A round-table discussion on "Introspective Techniques" was held. The chairman, Professor E. S. Robinson (Yale University) opened the session with a short historical discussion of the various meanings of the term "introspection," and by pointing out that quarrels regarding the proper meaning of the term had rendered it almost useless. He stated that Professor Bentley and others had attempted to substitute a new terminology, but that such a word as Bentley's "inspection" had not succeeded in becoming current. In opening the floor for discussion the chairman suggested that so far as possible the meeting be governed by a common-sense definition covering any form of self-observation. Professors Weld (Cornell University) and Fernberger (University of Pennsylvania) began the discussion by asserting the continued importance of self-observation in the psychological laboratory. They claimed that, whatever theoretical difficulties may have arisen with the definition of introspection, observation on the part of the subject had continued to play an important rôle in psychological experimentation. In connection with these remarks the question was raised as to whether expert training is a requisite of competent introspection. Those who commented on this question seemed to feel that such training was necessary in connection with certain introspective problems. It was pointed out, however, that important discoveries regarding the human mind had been made by Freud and others through the use of a very informal type of subjective observation. Another question that grew out of the discussions by Professors Weld and Fernberger dealt with the difference between human introspective experiments and certain experiments on the sensory discrimination of animals. There was some disagreement as to whether animals in such experiments do in fact introspect. Professor Fryer

(New York University) asked for a discussion of the possibility of a quantification of introspective reports, particularly as they are elicited in studies of personality problems. These remarks called out a considerable number of comments regarding the usefulness of introspection in a variety of personality studies, but without focussing the issue.

Dr. Joseph Jastrow presided at the dinner meeting; President Aloysius J. Hogan, S.J., of Fordham University, welcomed the group, and Professor Herbert S. Langfeld, Princeton University, delivered the honorary president's address on "The Place of Esthetics in Social Psychology." The gist of his address follows: It appears that esthetics has been somewhat neglected in social psychology. The main thesis of the address, therefore, was to emphasize the importance of artistic creation as a unique form of social communication, since man is able to express his personality more completely through the medium of art than in any other way. The difference between art and play was discussed and it was shown that, paradoxical as it might seem, the desire for social communication and approval is more fundamental to the former than to the latter. The artist is always consciously or subconsciously desirous of some kind of an audience, while there are forms of play in which the individual is self-sufficient. Some of the methods by which the artist achieves self-expression through esthetic forms, such as line and color, were described. It was pointed out, however, that pure form in the visual arts is apt to lead to an abstract and in consequence ineffectual art. Criticism was also directed against the modern tendency to represent the individual's subjective thought processes on the ground that images in themselves can rarely be a vehicle for successful communication. The psychological fallacy of writings such as Gertrude Stein's was also explained. It was shown further, however, that the artist is often compelled to break through the conventional way of perceiving things, as for example in regard to the constancy of objects, in order to give a satisfactory representation of the world as it is experienced. Finally the lag in regard to taste and the necessity for a gradual adaptation toward industrial art forms was discussed.

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## SPECIAL ARTICLES

### THE CARCINOGENIC EFFECT OF A VIRUS UPON TARRED SKIN

SHOPE showed in 1933<sup>1</sup> that the cutaneous papillomas common in western cottontail rabbits (*Sylvilagus floridanus*, Allen) are caused by a virus. The

<sup>1</sup> R. E. Shope, *Jour. Exp. Med.*, 58: 607, 1933.

growths exhibit the traits which are characteristic of tumors in general,<sup>2</sup> but differ from these in the important respect that they are manifestly infectious in origin under natural conditions. Inoculation of the

<sup>2</sup> Peyton Rous and J. W. Beard, *Jour. Exp. Med.*, 60: 701, 723, 741, 1934.

virus into domestic rabbits (Genus, *Oryctolagus*) results in papillomas of notably aggressive behavior, which frequently become cancerous within a few months.<sup>3</sup> The metastasizing, highly malignant carcinomas that develop then are the outcome of changes in the virus-infected epithelium which are conditional upon various favoring circumstances. The precancerous period of papillomatosis can be much shortened by stimulative procedures, but it has not been done away with entirely by such means, nor has malignancy been induced by introducing extracts of the cancers into normal skin.

The papilloma is formed by multiplication of the epidermal cells with which the virus becomes associated at the time of inoculation, and it is essentially a composite of cell "families," a fact often evident in its aspect. Cancer arises more frequently from some of these families than from others within the same growth. In order to provide a wide range of cell conditions at the time of the initial cell-virus association, as also to give opportunity for any individual differences in the virus entities to assert themselves, advantage has been taken of the tendency of the virus to localize in hyperplastic epidermis.<sup>2</sup> The hyperplasia was secured by tarring the ears of rabbits. After 1½ to 3 months of tarring, when tar papillomas had begun to appear, a large amount of a Berkefeld filtrate, containing active virus, was injected into a leg vein. During the next two weeks—the incubation period of the virus—no significant local changes took place, though some of the growths due to the tarring continued to enlarge slowly, and a few others sometimes appeared. Then in many of the rabbits the growths underwent extraordinary alterations, becoming within a few days discoid, beefy and infiltrative, while many new and similar ones developed. Soon low mounds or ill-defined swellings appeared opposite certain of the tumors, as also elsewhere on the outer side of the ears. The tarring was now discontinued, yet the tumors continued to enlarge; some of the outer swellings ulcerated; the ears became greatly thickened, nodular and distorted, and their hollows filled with coalescing masses of fungoid tissue. These changes usually occupied but a few weeks, and rapidly led to death. Biopsies disclosed the presence at an early period of numerous, discrete, highly anaplastic carcinomas, which frequently had extended through the lacunae in the cartilaginous sheet, causing the ulcerations on the outer side of the ears. Some of the malignant growths developed on the basis of pre-existing tar papillomas but others where none had been visible. In an instance of the latter sort anaplastic cancers 3 mm and 4 mm across developed within 22 days after

the virus inoculation. Only where the skin had been tarred did tumors appear.

Most of the nodular or fungous thickening of the ears proved due to growths expressive of the various stages in the transformation of virus-induced papillomas to anaplastic, squamous-cell carcinomas.<sup>3</sup> One could discern, crowded and intermingled in the masses of actively proliferating tissue, benign papillomas, others that were cystic or complicated in pattern and of dubious import, yet others that were frankly invasive and destructive, and carcinomas of all degrees of malignancy. Sections taken early have shown that some of the latter were anaplastic from the beginning.

Many of the benign papillomas could be identified by their slaty hue as due to the action of the virus. Save when they were heavily pigmented, as in these cases, they could not be told from papillomas due to tarring. Indeed all the growths which developed after the virus injection were found to have their counterpart amongst the tumors which develop in rabbits that have been tarred for long periods. Yet the tar tumors can scarcely be caused by the virus now under consideration, or another antigenically related to it, for the blood serum of rabbits carrying tar papillomas does not neutralize the virus *in vitro*, whereas that from animals with virus-induced papillomas usually possesses this power.

In supplementary tests rabbits that had been tarred for many months, with many large and small papillomas in consequence, were injected with the virus intravenously. Again events took the course described. A curious feature was the development of numerous tumors from the hyperplastic epithelial layer covering large, rounded, fleshy, tar papillomas that consisted for the rest of connective tissue. These soon became studded with growing bosses, and were replaced as the new tumors invaded their substance.

The literature on the effects of tarring the ears of rabbits yields no examples of fulminant carcinosis such as are here reported, nor have any been observed in the numerous control animals of the present work.

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#### ISOLATION OF CRYSTALLINE PEPSINOGEN FROM SWINE GASTRIC MUCOSA AND ITS AUTOCATALYTIC CONVERSION INTO PEPSIN

LANGLEY in 1882<sup>1</sup> observed that slightly alkaline extracts of swine gastric mucosae contained a material which was not pepsin but which could be converted into pepsin upon acidification of the extract.

<sup>1</sup> J. N. Langley, *Jour. Physiol.*, 3: 246, 1882.

<sup>3</sup> *Ibid.*, 62: 523, 1935.