1936, Mr. Jones himself saw tobacco under cultivation at the Indians' farms at Ranchitos and was told by an Indian that this was the kind of tobacco commonly grown and used by them. Mr. Jones judged this tobacco to be *N. rustica,* although he did not have the opportunity to make definitive identification at that time.

This discovery is of interest for two reasons: (1) There is very little evidence indeed to indicate that tobacco of any kind has ever been cultivated by the Pueblo Indians of the Southwest; and (2) it is surprising to find this particular species of *Nicotiana* in this region.

Ad. F. Bandelier, who made first-hand studies of the Pueblo Indians in the 1880's and who was intimately acquainted with the documentary history of the pueblos, has declared that "tobacco was not known to the Pueblos until Spanish rule became established."[1] John H. Bowman, an Indian agent of the "Navajo Agency, New Mexico," in a report to the Commissioner of Indian Affairs dated September 9, 1884, states that the Hopi cultivated tobacco "to an insignificant extent" (p. 137). George Vasey states that *N. rustica* "was cultivated by the Indians in New Mexico and Arizona, as observed by Dr. Ed. Palmer."[2] Considerable search has failed to discover this statement in the publications of Dr. Palmer. But, in one of Palmer's papers, we find evidence to the contrary: he states that *N. attenuata, N. trigonophylla* and *N. bigelovia* were used by the Indians of the Southwest, but implies that they were not cultivated.[3] Robbins *et al.* state that the Tewa Indians of north central New Mexico "formerly cultivated" *N. attenuata,* but cite no evidence whatsoever in support of this claim.[4] A. F. Whiting lists *N. attenuata* and *N. trigonophylla* as the tobaccos used by the Hopi Indians and remarks that "it is said that tobacco is cultivated sporadically."[5] Mr. V. H. Jones observed a few plants of *N. attenuata* growing here and there, at random, among other plants in gardens near the Hopi pueblo of Walpi. He was told by a trustworthy Hopi that these tobacco plants had not been planted, that they had come up of their own accord, but the gardeners had allowed them to remain and that they would be harvested eventually. This might be called "semi-cultivation." Thus, the specimen collected by myself at Ranchitos and the observations of Mr. Jones at the same place, constitute the only conclusive evidence of intentional and systematic cultivation of tobacco among the Pueblo Indians of which the present writer is aware.[6]

Our discovery of *N. rustica* at Ranchitos is the only conclusive evidence of the existence of this species in the Southwest that we have. We know of only one other claim that this species has been found in this region, *viz.,* the statement previously quoted from Vasey. But, as we have seen, this statement is opposed, rather than supported, by the authority whom Vasey cites. Wm. A. Setchell, in "Aboriginal Tobaccos,"[7] states that *N. rustica* was cultivated in the Eastern Woodland and the Southeastern culture areas. The western boundary of *N. rustica,* according to Setchell, "is probably along the line of the eastern boundary of the 'Plains area' as outlined by Wissler [in 'The American Indian']," *i.e.,* but a short distance west of the Mississippi River (p. 402). The Southwestern area, says Setchell, "used an entirely different species, *viz., Nicotiana attenuata* Torrey," (p. 410). He also places *N. trigonophylla* in the Southwest, "ranging from southeastern California to the western borders of Texas" (pp. 412–13).

N. rustica is believed to have originated in Mexico and to have entered the Southeast "through the southwestern corner of Texas," (Setchell, p. 410). The presence of this species under cultivation at Tamaya to-day remains to be explained. It may have been introduced within the past 50 years or so from some eastern Indian reservation, to be sure. But the possibility that it may be a relic of the original diffusion from Mexico can not be entirely dismissed at this time.

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[1] *Final Report,* etc., Pt. I, p. 37 (Papers of the Archeological Institute of America; Amer. Series III; 1890).

[2] Report of the botanist, p. 76 (in Report of the Commissioner of Agriculture for 1886).

[3] "Plants used by the Indians of the United States," p. 650, *American Naturalist,* Vol. 12, 1878.

[4] W. W. Robbins, J. P. Harrington and B. Freire-Marreco, "Ethnobotany of the Tewa Indians," p. 103, Bull. 55, Bureau of American Ethnology, 1916.

[5] "Ethnobotany of the Hopi," p. 90, Bull. 15, Museum of Northern Arizona, 1939.

[6] Professor E. F. Castetter, of the University of New Mexico, who has been making studies of plants used by the Pueblo Indians, may have data on this point.

[7] *American Anthropologist,* 23: 397–414, 1921.

CERVICAL EXPOSURE AND ABRASION IN HUMAN TEETH FOR DIFFERENT AGE CLASSES[1]

THERE are numerous references in dental literature to the existence and cause of abraded areas along the gingival margin of human teeth, but the degree of incidence of this condition has not been determined. From clinical data recently collected, it appears that this incidence is unexpectedly high. For these reasons a preliminary report is presented at this time.

Two hundred individuals, divided equally as to sex, and into four age groups, 20–29, 30–39, 40–49 and 50–59, were examined. The examination consisted of measuring the linear extent of exposed cementum or dentin, on the buccal, or labial, surface of each tooth

[1] A project of the Research Foundation, the Ohio State University, carried on with the aid of a grant from the Procter and Gamble Company.

in the mouth. The degree of abrasion, if any existed, was measured by determining the depth of any cuts or grooves found. A study was also made of the relationship between the condition of oral hygiene and the presence, or absence, of abrasion.

The results show that only a small percentage of teeth with 0.5 mm of exposure were abraded, whereas a very high percentage of those with 1.0 mm, or more, exposure showed some loss of the dentin. Therefore, it appears that 1.0 mm of exposure is critical in the sense that it permits considerable wear if the subject practices average oral hygiene. In the age groups 20–29, 30–39, 40–49, 50–59, critical exposures existed on one or more teeth in 58 per cent., 84 per cent., 96 per cent. and 94 per cent. of the subjects, respectively.

The incidence of some extent of abraded cementum and dentin increased with age from 42 per cent. to 76 per cent. The percentage of subjects showing wear greater than 0.5 mm deep increased from 4 per cent. in the age group 20–29 to 42 per cent. in the groups above 40 years of age.

An excellent correlation was found between the thoroughness of oral hygiene and the occurrence of abrasion. In those portions of the mouth where toothbrushing was most thorough, and among those people with the best oral hygiene, the incidence of abrasion was the highest and on the other hand, where poor oral hygiene was observed very little abrasion was noted.

The influence of age and oral hygiene on exposure and abrasion of cementum and dentin has been briefly summarized here. It is planned to present this data in detail at a later date along with a discussion of the effect of sex and the position of the tooth in the mouth on exposure and abrasion.

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THE EFFECT OF CHLOROFORM ON SOME INSECT BITES

DUE, in part at least, to economic factors the control of mosquitoes and biting insects is not always feasible or practical. Nevertheless, this state of affairs affords little consolation to the susceptible individual who must live and work where these pests abound.

In 1924 the writer noticed that cotton saturated with carbon tetrachloride rubbed briskly on mosquito bites caused a rapid cessation of pruritis. Later chloroform was substituted, and found superior. Since then similar trials have been made on a number of individuals, including several physicians. It was felt that the testimony of the latter would add some degree of validity to these rough tests.

The arthropods concerned in these tests were the local red bug, *Trombicula sp.,* the mosquitoes *Culex fatigans* and *Aedes aegypti,* the prevalent black fly, *Simulium quadrivittatum,* and the gnat, *Culicoides furens,* a most annoying species common along the coastal plain of the island.

In all instances the results confirmed initial observations. Usually a more beneficial effect was experienced if treatment were not too long delayed. Nevertheless, a physician whose entire body surface was covered with mosquito bites after a trip to an adjacent island, condescended to try chloroform on a limited area approximately 48 hours after incurring the bites. The relief was so marked that he soon applied the drug on a considerably larger scale.

The dermatologist may present objections to the use of chloroform as a counter-irritant. Of course this substance must be kept from the eyes and mucous membranes. In all tests made no effect other than a transient burning sensation was noted. In one instance a woman long affected with angioneurotic edema, and very susceptible to mosquito toxin, used chloroform to obtain relief over a period of several months. The objective was attained without causing any noticeable change in the edematous condition.

The tests indicated here are obviously not critical ones. It is believed, however, that sufficient evidence has been accumulated to justify calling attention to the palliative potentialities of chloroform against the toxins injected by mosquitoes and other noxious arthropods. It deserves a trial for flea bites and schistosome dermatitis, provided of course, the areas involved in the case of the latter are not too extensive.

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PRESERVATION OF SAMPLE AREAS IN THE NATIONAL FORESTS

I WOULD like to make a brief reply to Dr. Henry I. Baldwin's communication in SCIENCE for June 27, 1941, in which he condemns my criticism in a communication in SCIENCE for May 2, 1941, of the failure of the U. S. Forest Service to preserve in the National Forests sample areas exhibiting the finest development of the different types of our primeval forests.

Dr. Baldwin asserts that reservations of "really valuable timber" (whatever that may mean) "have been made by the Forest Service in a large number of cases."

Now what the Forest Service has done and is doing is not a matter of argument but of fact and of record. Either such reservations in the National Forests exist or they do not. If they do, do they contain optimum or near-optimum stands of the wonderful forests of the western United States;—forests unequaled anywhere else in the world, whose unique scenic magnificence as well as scientific interest demanded that adequate areas of the finest stands should be preserved?