Table 1. Analysis of several resinous exudates.

Native designation	Region from which obtained	Botanical designation	Acetone soluble*	Acetone insoluble*	Caoutchouc*	Gutta*
Chakun	Bang-bao (Siam)	*Mimusops* sp.	77.6	22.4	0.59	13.7
Chakun	Bang-bao (Siam)	*Mimusops* sp.	71.9	28.1	.25	16.9
Chakao	Tapet (Siam)	*Palaquium* sp.	66.4	33.6	.70	10.6
Chikhao	Thapet (Siam)	*Palaquium* sp.	73.4	26.6	.23	10.4
Masang	Huay-rai (Siam)	*Mimusops* sp.	76.2	23.8	.02	15.7
	Huay-rai (Siam)		72.6	27.4	.09	16.7
	Prae (Siam)		74.6	25.4	.52	18.1
Khanun-nok	Khlung (Siam)	*Palaquium obovatum*	75.9	24.1	1.30	6.4
	Khlung (Siam)		68.0	32.0	3.7	20.9
	Traat (Siam)		65.1	34.9	4.5	21.5
White Nato	Davao Penal Colony, P. I.	*Palaquium* sp.	54.9	45.1	1.9	41.8
Red Nato	Davao Penal Colony, P. I.	*Palaquium* sp.	56.0	44.0	3.6	41.5
Malak-malak	Macum, Tagum Davao, P. I.	*Palaquium philippense*	63.4	36.6	2.0	18.5
Kalipayia Colorado	La Brea, P. I.	*Palaquium ahernianum*	55.1	44.9	1.5	31.9
Kalipayia Blanca	La Brea, P. I.	*Palaquium ahernianum* Merrill	61.1	38.9	6.6	17.5
Lokosdulian	Lituban, P. I.	*Palaquium* sp.	56.8	43.2	1.5	32.4

* Percentage of dried coagulated latex obtained from the plant.

cipitation of the gutta was added dropwise, with stirring, an equal volume of methanol (120 ml) containing a trace of sodium iodide. After standing overnight, the sticky mass of caoutchouc was separated by decantation or filtration, whichever was more practical. The caoutchouc was dried under vacuum at 60°C and weighed. The yield was calculated from this weight.

The data presented show that chicle is not a unique plant exudate in having both cis- and trans-polyisoprene (caoutchouc and gutta). Several species of the genera *Palaquium* and *Mimusops* were found to yield latexes containing both hydrocarbons.

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Communications

Duration of Infectivity of the Virus of Silkworm Jaundice

Insect viruses contained within polyhedral inclusions are known to be remarkably resistant to the effects of drying and other adverse environmental conditions. In the literature, such viruses have been variously reported as viable for "months," "years," "several years," and so forth. Bolle, in 1907 [*Z. landwirtsch. Versuchsw. Deut. Oesterr.* **10**, 233], made the rather cryptic statement: "Es verdient hier die konstatierte Tatsache besonders hervorgehoben zu werden, dass nämlich das Infektionsvermögen der polyedrischen Körnchen selbtst bei über 25 Jahre altem Infektionsmaterial unverändert erhalten wird." Recently I had the opportunity to test experimentally the infective capacity of a lot of silkworm-jaundice virus (*Borrelina bombycis* Paillot) stored for a period of 15 yr.

In 1948, through the kindness of N. R. Stoll, I obtained a number of flame-sealed glass tubes of the silkworm-jaundice virus that had been prepared in 1939 by the late R. W. Glaser of the Rockefeller Institute for Medical Research. The tubes were filled with polyhedra-containing hemolymph, and have been stored at room (23°C) and refrigerator (4°C) temperatures, mostly the latter.

On 8 Sept. 1953, the contents of one of the tubes was fed on mulberry leaves to healthy silkworm larvae [*Bombyx mori* (Linn.)]. Within 5 to 7 days, two of the three test larvae died with typical jaundice symptoms, and large numbers of polyhedra were observed in their body contents. A control group of at least 100 silkworms remained healthy.

Again, on 30 Apr. 1954, silkworm larvae were fed mulberry leaves contaminated with suspensions of polyhedra drawn from diseased silkworms 15 yr previously. Twenty-five of the 30 test larvae succumbed with symptoms typical of silkworm jaundice. None of the 25 control larvae showed any signs of infection.

Furthermore, the polyhedrosis has never appeared spontaneously in our stock. The latter was obtained through the courtesy of G. H. Bergold in June 1953.

Thus it would appear that the virus of silkworm jaundice is capable of retaining its infective capacity while stored in sealed tubes (mostly at 4°C refrigeration) for a period of at least 15 yr.

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A Theory to Account for the Effects of Early Handling on Viability of the Albino Rat

Weininger (*1*) found that early handling of the male albino rat results in greater weight, increased skeletal length, and reduced cardiovascular and gastrointestinal damage under severe emotional stress as an adult. Ruegamer *et al.* (*2*) have shown this gain in weight by extra handling to be a result of better food utilization by the rat rather than of increased food consumption.

A major change in hypothalamic functioning, involving reduction or inhibition of massive sympathetic discharge in response to an alarming stimulus and, hence, decreased ACTH output from the pituitary, is suggested (*3*) to account for the afore-mentioned results. Such a reduction in ACTH output could account for the adrenal hypoactivity (*1*) obtained under emotional stress in handled animals and, hence, for the reduction in damage to the heart and stomach of these animals compared with controls.

Such a reduction in posterior hypothalamic reaction to alarming stimuli might also, in the long run, account for the greater skeletal length and weight of the gentled rats. Fried (*4*) has found in clinical studies of children that socioemotional disturbances have a direct and adverse effect on physical growth. Thus the same stimuli in the laboratory routine may have had more of an emotionally disturbing and growth-inhibiting effect on the nongentled rats. That this is the case is certainly suggested by their greater fearfulness both in an open field (*1*) and in their home cages (*2*).

Production of somatotrophic hormone in these animals may have been reduced concomitant with a higher level of ACTH production from the pituitary, arising in turn from a higher level of emotional reactivity. An inverse relationship of STH production to ACTH production under systemic stress is suggested by Selye (*5*).

Early handling would thus appear to have induced a permanent rise in the threshold for emotional reactivity. To test this hypothesis, the peripheral autonomic response of gentled rats to a mildly alarming stimulus, in terms of changes in electrical skin resistance, tail temperature, and blood pressure, could be compared with that of nongentled controls.

Such a change in the threshold of emotional reactivity of gentled animals may have taken place through an alteration in the cortical-diencephalic relationship, particularly through increased cortical inhibition of the posterior hypothalamus. Since, as is well known, removal of the cortex or depression of cortical function, as in anoxia, increases emotional reactivity in experimental animals (*6*), it can be presumed that a general increase in the level of cortical activity of gentled rats and, thus, an increase in cortical stimulation of the posterior hypothalamus may be involved in the decreased emotional reactivity of these animals. This proposition could be readily tested by comparing electroencephalographic records of cortical activity of gentled rats with records for suitable nongentled controls.

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A Method for Marking Marine Worms

The need of a suitable method for marking or tagging polychaetous annelids was stressed by A. H. Gustafson [*Dept. Sea Shore, Research Bull.* 9, 1 (1953), Augusta, Me.]. However, none of several methods he employed proved to be satisfactory. When I undertook studies on the natural population of the marine polychaetous annelid *Glycera dibranchiata* Ehlers in the area of Wedgeport, Yarmouth County, Nova Scotia, a search was made for a suitable marking method.

After several experiments with a number of biological stains, such as methylene blue, Sudan III, alizarin red, and Bismarck brown vital, I found that only Bismarck brown stained subjects for any considerable length of time. Worms immersed for 1 to 2 hr in 1/1000 and 1/2000 concentrations of Bismarck brown in sea water took up some stain. They were afterward kept for several days in dishes of sea water, which was changed daily. However, the color faded slowly, and after 14 days practically all coloring was gone, so that the subjects could not readily be distinguished from control worms. About 50 marked worms were released into the mud of the intertidal zone, and after 48 hr they could not be distinguished by color from unmarked individuals. It was concluded that this method could be of limited use only, and an effort was made to find a more permanent method of marking.