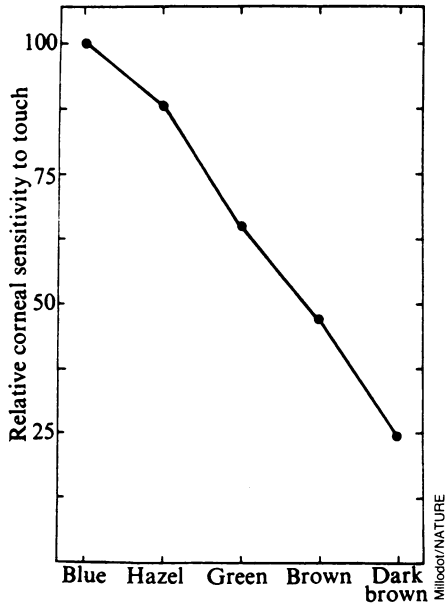


Eye color and pain sensitivity



Eye color correlated with pain sensitivity.

In Gothic novels, blue- or green-eyed persons are usually the heroes. But in the real world, persons with brown eyes may come out ahead. A Welsh ophthalmologist has found that persons with brown eyes, particularly nonwhites with brown eyes, are much less sensitive to pain than are persons with light-colored eyes.

The ophthalmologist is Michel Millodot of the University of Wales Institute of Science and Technology. His results, reported in the May 8 *NATURE*, have implications for drug administration, the wearing of contact lenses and why acupuncture is more acceptable to Eastern than to Western peoples.

In fitting contact lenses, opticians have noted that the sensitivity of the cornea seems to vary depending on whether a person has blue or brown eyes. The cornea is the transparent windshield over the eyeball. It covers the iris, the colored part of the eye, as well as the pupil, which admits light to the retina of the eye. Because corneal sensitivity could reflect the general tactile sensitivity, Millodot decided to test corneal sensitivity among persons with different eye colors.

Millodot chose 112 Caucasian subjects and 44 nonwhite subjects. Of the nonwhites, there were 12 Negroes, 15 Indians and 17 Chinese. All were about 24 years old and had no eye diseases or abnormalities. The subjects were then separated into groups according to the color of the iris: blue, hazel, green, brown and the darker brown of nonwhites. Millodot then applied an aesthesiometer to the cornea of each subject. An aesthesiometer is usually used to measure the depth of anesthesia in the eye, but Millodot used it to apply gentle, but increasing pressure to the cornea. When a subject felt pressure on the

cornea, she or he pressed a bell.

Millodot's results provide statistical evidence that the corneas of blue-eyed people, on the average, are twice as sensitive as the corneas of brown-eyed people. Hazel-eyed and green-eyed persons have slightly more sensitive corneas than those with brown eyes, but do not show as much sensitivity as those of blue-eyed persons. Even more striking, brown-eyed nonwhites have corneas that are only half as sensitive as those of brown-eyed whites, and only a fourth as sensitive as those of blue-eyed nonwhites.

These findings have several practical implications. For one, they confirm the known clinical fact that more drugs must be used in the eyes of brown-eyed persons than in the eyes of blue-eyed persons to achieve the same potency. Also, blue-eyed persons may have more trouble adjusting to contact lenses than brown-eyed persons. Finally, corneal sensitivity may

reflect the general sensitivity of the body. Last year Millodot found that when women's corneal sensitivity is reduced at the time of menstruation, the touch sensitivity of their middle finger also diminishes. So if dark-eyed, dark-skinned individuals are really less sensitive to pain than other persons are, it may help explain, Millodot says, why "the practice of acupuncture may be more acceptable in China than it is in countries inhabited by blue-eyed people."

How does corneal sensitivity, or the general sensitivity of the body for that matter, relate to iris color? Since the cornea does not contain pigment, it is not easy to link its sensitivity with iris color. However, the corneas of blue-eyed persons might contain more nerves than the corneas of brown-eyed persons. Still, if this is the case, nerve density in the cornea would not explain how corneal sensitivity correlates with general bodily sensitivity. So the links between corneal and bodily sensitivity, Millodot hazards, probably arise in the central nervous system. □

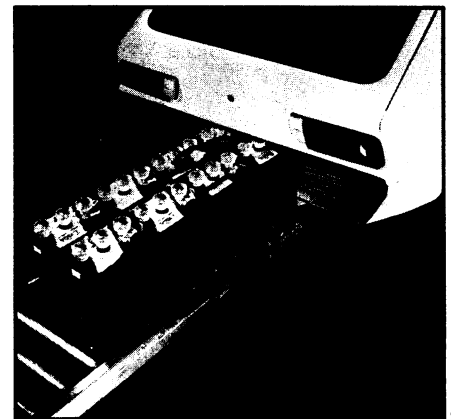
Things look up for electric cars

At the turn of the century a great race was in progress to see which form of automotive power would capture the growing American market. One of the two leading contenders, electric cars, held 38 percent of the market after only 10 years of manufacture in the United States—originating in the great American motor city, Des Moines, Iowa. But electricity still couldn't quite catch up to the 40 percent market lead of the odds-on favorite, steam.

Of course some hardy people didn't mind getting up early on a cold morning to arm-wrestle with their gasoline-powered carriage, but only if their neighbors were understanding about noise and smoke. When the electric starter eliminated the need for cranking gas-driven cars, more people began using them. Noise and smoke levels were reduced. But as these emanated from millions of vehicles, people have begun to examine the

redeeming features of the electric car as a possible solution to the metropolitan traffic mess.

Probably the most influential backer of electric cars is Rep. Mike McCormack (D-Wash.), chairman of the House Sub-



Copper Development Assoc.



Battery tray for new electric car. (Left) McCormack with the car: "Fun to drive."

John H. Douglas