

waves are well known. Electric sparks many feet in length are easily generated. Astonishing luminous effects accompany high-frequency experiments. Conductors glow in the dark with a bluish luminosity. Vacuum tubes are caused to give out light many feet away from the apparatus in which the high-frequency discharges are generated.

Most curious perhaps of all, to the lay mind, is the possibility of passing through the body current enough at high frequency to light lamps in circuit with the body, without producing any harmful effects, and, in fact, without producing any sensation whatever. Spark discharges from the apparatus which would seem to have the power to kill instantly are received harmlessly. Indeed, when currents have a frequency more than a certain amount—say 10,000 per second—the physiological effects seem to be in abeyance, as if the rapid reversals of the current could not leave any permanent effect.

Certain forms of moderately high frequency currents give promise of actually producing insensibility to pain without interfering with consciousness, and it is possible that the future may see surgical operations performed with the protection of the subject from painful sensations by the passage of these currents. Up to the present, however, there has been no use actually made in the practice of high-frequency effects, unless we class with such effects those of transmission without wires.

Wireless telegraphy of today is, however, a direct outcome of Hertz's experiments on electric waves. It is but little more than ten years since Hertz announced his results to the world. His work, supplemented by that of Branly, Lodge, and more recently Marconi, has made wireless telegraphy a possibility, and there are indications that enormous distance may yet be covered by this ethereal transmission. Just here we may refer to the fact—for it is a fact—that the electrical energy transmitted over a line, which may be many miles in length, really does not travel by the wire connecting the two points. It travels in the ether surrounding the wire. The wire itself is, in fact, the guiding core of the disturbances in the ether which proceed outward in all directions to unlimited distances. The guiding core or conducting wire is needed to focalize or direct the delivery of the energy. This curious conclusion of science, then, that the power from

the power-station travels in the space around the wires led from the station is one of the results of recent electrical studies, just as with light those studies begun by Maxwell and Hertz have led to the inevitable conclusion that the light of the candle, the light of a kerosene lamp, and the light of a gas burner are all in essence electrical phenomena as are all forms of radiation in the ether.

The wireless telegraph of today utilizes a sudden electrical disturbance made at one point, which travels by the surrounding ether in all directions and is picked up in feeble fashion, it may well be, by very sensitive receiving instruments. The shock or disturbance to the ether is thus recognized, and by a preconcerted system of signals the slight disturbances are sent out in a sequence such as to convey intelligible messages. Distances of upward of 100 miles are thus covered with what must be regarded as an extremely feeble means so far as the scale of the apparatus is concerned, and there would seem to be no reason why the scale of operations greatly increased may not

in the near future widely extend the range over which wireless telegraphy can work.

The wonderful X ray and the rich scientific harvest which has followed the discovery by Röntgen of invisible radiation from a vacuum tube were preceded by much investigation of the effects of electric discharges in vacuum tubes, and Hittorf, followed by Crookes, had given special study to the effects in very high or nearly perfect vacua. Crookes, though specially enriching science by his work, missed the peculiar X ray, which nevertheless must have been emitted from his vacuum tubes, not only in his hands, but in those of subsequent students. It was as late as 1896 that Röntgen announced his discovery. Since that time several other sources of invisible radiation have been discovered, more or less similar in effect to the radiations from a vacuum tube, but emitted, singular as the fact is, from rare substances extracted from certain minerals. Leaving out of consideration the great value of the X ray to physicians and surgeons, its effect in stimulating scientific inquiry has al-

ANTHROPOLOGY

Many Colors Found In Eyes of Newborn Babies

THE TRADITION that all babies' eyes are blue at birth has been shattered. Taught by physicians, physiologists, and geneticists for many years, this "fact" has been proved a fallacy by the simple means of actually examining under good illumination the eyes of nearly five hundred newborn infants in the hospital of the Johns Hopkins University. Dr. W. C. Beasley, instructor in psychology at the university, made the examination.

Not only were other colors than blue found in the newborn babies' eyes, but brown was found in 79.5 per cent. of the white infants' eyes and 99.3 per cent. of the Negroes'. Many eyes held several colors. Yellowish and reddish browns were seen, and greens, violet, gray and lavender, as well as flecks and streaks of as many as 187 different hues. Only 28 of the 455 infants examined had plain blue eyes.

But there is a reason for the tradition that all white infants have blue eyes. For the eyes at birth have a clouded ap-

pearance, due perhaps to lack of clearness in the fluid between the front of the iris and the cornea. This cloudiness acts as a veil to hide the true colors of the eye from the casual observer. The resulting appearance is a murky look which could well be described as dark blue or gray.

If you look at the young baby's eyes closely, however, with bright illumination and some optical aid such as that afforded by a reading glass or pocket microscope, you will be rewarded by seeing the real eye color shine through.

And you will probably notice many things about the eyes that you have never seen before. You may see streaks radiating from the center like the spokes of a wheel. Or you may find a ragged patch, either large or small, surrounding the pupil. Or a narrow ring around the pupil. Or all sorts of flecks, spots, and streaks. Altogether 200 different combinations of these patterns were found to be possible in human eyes.

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