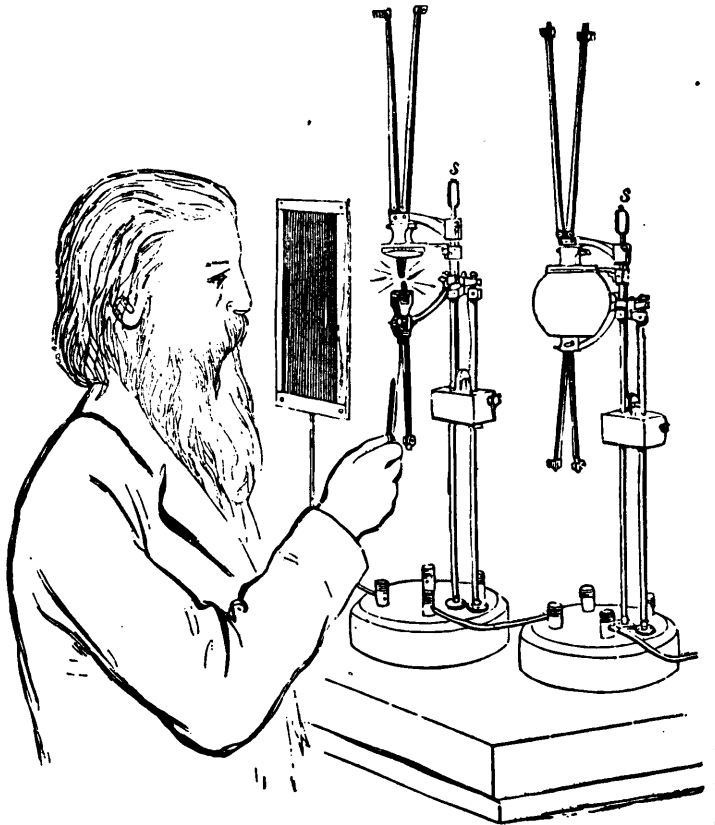


put on, it passes through a dual electro-magnet in the base, the armature of which is attracted upward and pushes a rod up the hollow stem *s'*. This rod allows the lower carbon to drop away from the upper to the full width of the arc as previously adjusted. The positive and negative currents pass to their respective upper and lower carbons by means of the stem *s s'*, and the curved brackets. With carbons 20 inches long and 5 millimeters in diameter, the light is maintained for seven or eight hours, and with those 6 millimeters thick it is kept up for nine or ten hours. The light is equivalent to from 100 to 120 gas flames, or say about 1,000 candles. The smallest form of the lamp made gives a light estimated at five gas flames. M. Rapiéff is now constructing a form of lamp made to burn upside down, in order that it may be fixed on the ceiling of rooms. Mica plates are sometimes used to screen off the heat from the cords when they are of silk. The resistance of the arc is only two or three ohms.

Fig. 3 represents a modified form of Rapiéff's lamp. In it the carbons are simply inclined to each other at an angle which can be regulated by the same screws *d d'*. The width of the arc can also be regulated by the same screws. The carbons are drawn together by the descent of a counterpoise *w*, in a similar manner to that above described. In the lamp the planes of the carbon pairs are parallel to each other. A cylinder of lime *c*, is supported over the arc, and becoming luminous increases the illuminating power of the arc by about 40 per cent. The carbons M. Rapiéff employs are made by M. Carré. The light is very pure and white, and can be considerably varied in intensity by the adjusting screws. Gramme's dynamo-machines are at present used in the *Times* office, but we believe that M. Rapiéff has patented one of his own. There are six lamps in each circuit in the *Times* office, but M. Rapiéff has successfully exhibited as many as ten.



Miscellaneous.

MAN'S AGE.

Few men die of old age. Almost all die of disappointment, passion, mental or bodily toil, or accident. The common expression, "choked with passion," has little exaggeration in it, for even though not suddenly fatal, strong passions shorten life. Strong-bodied men often die young; weak men often live longer than the strong, for the strong use their strength, and the weak have none to use. The latter take care of themselves, the former do not. As it is with the body, so it is with the mind and temper. The strong are apt to break, or, like a candle, to run; the weak to run out. The inferior animals that live temperate lives have generally their prescribed number of years. The horse lives twenty-five; the ox fifteen or twenty; the dog ten or twelve; the rabbit eight; the guinea-pig six or seven years. These numbers all bear a similar proportion to the time the animal takes to grow to its full size. But man, of all the animals, is one that seldom lives this average. He ought to live a hundred years, according to physical law, for five times twenty is a hundred; but instead of that he scarcely reaches on an average four times his growing period; the cat six times, and the rabbit even eight times the standard of measurement. The reason is obvious—man is not only the most irregular and intemperate, but the most laborious and hard-worked of all animals. He is also the most irritable, and there is reason to believe, though we cannot tell what an animal secretly feels, that more than any other animal, man cherishes wrath to keep it warm, and consumes himself with the fire of his own reflections.

PROMISED REVIVAL OF SODOM AND GOMORRAH.—It is reported that French capitalists have secured a grant for a railway line from Jaffa to the interior of Palestine, which will open up the Jordan valley and the whole region north of the Suez canal. In certain contingencies this road might become of great military usefulness, but it appears further that the productive resources of the country are considerable, and what is more surprising, that the Dead Sea itself can be turned to commercial account. Chief of these at present are the stores of natural combustibles

for which that region is noted. Hitherto the main obstacle to the development of steam traffic in the Levant has been the total absence of combustible material. Not only Egypt, but the shores of Syria and the Red Sea are completely stripped of wood, and the coal imported from the West commands a price ranging from \$10 to \$24 a ton. Now the masses of asphalt continually thrown up by the Dead Sea attest the presence of vast subterranean layers of fossil vegetable matter, and these signs were not long overlooked by the enterprising men attracted to Suez by the opening of the canal and the movement of commerce in that direction. Recently numerous soundings have been made between Jaffa and the Dead Sea, which, so far, have not disclosed any deposits of coal proper, but, on the other hand, have laid bare inexhaustible beds of lignite. Of itself this store of lignite is likely to prove an inestimable gain to the industries and commerce of the Levant. It is very well known that similar bricks, made up of coal dust and bituminous debris from gas works, are much sought after by French railways, since, besides their heating power, they greatly facilitate stowage, owing to their regular shape. Of course the bitumen of lower Palestine has been known from immemorial times, and was used to impart solidity to the structures of unbaked clay in Assyria and Egypt; but it may be said that the discovery of the subterranean combustible has lifted once for all the curse which has so long rested upon Sodom and Gomorrah, and will transform the wasted shores of the Dead Sea into a focus of industry and a magazine of wealth.

MANUFACTURING IN FRENCH PRISONS.—Says the *Iron Age*: "There are twenty-one central prisons in France for prisoners with sentences of five years and over. The cellular system is adopted in prisons for the detention of prisoners not sent up for more than a year and a day; but in the central prisons as many as 100 men sleep in one ward, certain of their number being responsible for the preservation of order. The dormitories are lighted, and there are openings from the galleries through which the guards may inspect them. By day the men work in *ateliers*, 50 or 100 in each. Shoes, chairs, woven fabrics, buttons, umbrella-ferrules, Chinese lanterns, etc., are manufactured, and such light work as glossing paper, sewing copybooks, and making hair ornaments is done. The work is let to contractors by tariff, fixed by the local Chamber of Commerce, to prevent any undue competition with free labor. Half of the profits of the prisoner's