When a bicyclist was unfortunately killed from an accident caused by fast riding, a witness said, on oath, that the rider was going so fast, and was so intent on the race, he did not hear witness until it was too late, that is to say, until he got within two yards of a cart into which he ran, when he altered his whole position, called out "Oh!" and coming into collision received the fatal injury.

In another instance, where one of the long and sleepless rides was carried out, the rider was seized with vomiting, which never ceased during the whole of the effort. He, too, lost the guiding power of his senses, and for some miles tugged on as if he were blind, tearing away, in fact, in a kind of trance, his higher nervous centers paralyzed and his body retaining its life and mere animal power, held living by the respiratory center and the heart, they also being taxed to the very extremity of danger.

When we, in these columns, tell plain and unvarnished facts of this character, we are sometimes accused of being alarmists. We care nothing for that harebrained stigma. We have our duty to perform, and it is our duty to declare, from a knowledge of the bodily powers and function, that the risk implied, even when there is escape from immediate accident, is dangerous up to the verge of insanity. We do not deny that every now and then a young man in the bloom of health and full of vital energy is able, during his short physical prime, to complete these remarkable feats and stand out for the moment the model of physical power in this one direction of it. Watching him in the plenitude of his strength, his companions will jeer at us and will ask us to tell them whether we can detect in him any demonstrable change for the worse. We are prepared to say "Perhaps no," for we have not yet at our command the knowledge and means for detecting the first and minor indications of organic injury from physical strain.

We admit, further, in all fairness, that a man may one or more times pass through the strain and not be so much injured as to be left bearing, necessarily, a life so shortened that the period of the shortening will admit of correct measurement. But with so candid an admission we must claim to hold with equal candor the facts that, although we may be unable to determine the infliction of injury by our present refined methods of diagnosis, we have the best and most common sense reasons, derived from experience, for assuming that the body at any age and in the finest condition cannot be exposed to the strains to which we refer without being oppressed beyond the bounds of safety; while we are absolutely certain that the oppression often repeated is of necessity a serious cause of organic degeneration.

On this last head experience of the clearest kind is our guide and monitor. We have watched the fate of those who, in the brief period of the history of these violent exercises of strength, have excelled and have run through their short day and generation, and we regret to record that no experience is more painful or more instructive for purposes of warning. Man is not an engine of iron and steel, but an organism of flesh and bone and blood that has to be renewed from day to day and from hour to hour, and his energy is not roughly chemical but vital in its nature; he is constructed for other and nobler purposes than mere engine labor; and if he throws himself into mere engine work, he will soon become an engine so disabled that his better self will fall into death before he has reached what in others better trained would be the prime period of vital strength and activity.—*The Lancet*.

DETECTION OF INFLAMMABLE GASES.

By Prof. FRANK CLOWES, D.Sc., University College, Nottingham.

THE appearance of a "cap" over the flame in the safety lamp has long been used by the coal miner for detecting "firedamp" in the air, and for roughly measuring its amount. The ordinary oil flame does not with certainty detect the presence of less than 3 per cent. of firedamp. The alcohol flame adopted by Pieler detects 0.25 per cent. readily; but since this flame gives no light, the Pieler lamp can be used for gas testing only, and is useless for lighting purposes. At the last meeting of the British Association the results of an examination of the Ashworth lamp were given by the author. This lamp burns benzoline, and was found to give good illumination when the wick was raised, and to detect at least 0.5 per cent. of firedamp when the wick was pulled down until it gave a pale blue flame only.

In the present paper the author describes a miner's safety lamp, in which the ordinary flame can at once be replaced by a hydrogen flame when desired. The use of the hydrogen flame enables the miner to detect readily and with certainty percentages of firedamp varying between 0.25 and 3.0, and to measure their amount. As soon as the delicate testing is finished the ordinary flame of the lamp is kindled, and can be employed either for illumination, or, if lowered, it can be applied to the detection of percentages of gas larger in amount than those found by the hydrogen flame. The hydrogen gas is carried in a small steel reservoir, slung over the shoulder by a strap, and is introduced through a fine metal tube, which passes into the interior of the safety lamp and terminates near the wick. This composite lamp is at once a good illuminator and an extremely delicate gas tester.

Comparative experiments were made with a hydrogen flame, an alcohol flame of the same height, and a small blue benzoline flame, all of which were exposed in air containing 1 per cent. of coal gas. The "cap" seen over the hydrogen flame was nearly four times as high as that seen over the benzoline flame, and half as high again as that seen over the alcohol flame.

Many serious accidents have arisen from bringing a "naked flame" into spaces in which light petroleum oil has been stored. The vapor of this oil, when mingled with the air in proper proportions, is violently explosive, and it becomes important, therefore, to have means of detecting its presence and measuring its amount. The author described tests carried out with the above hydrogen safety lamp in his test chamber. They prove that the hydrogen flame can detect one twentieth of the amount of petroleum vapor which can be kindled in air, and one thirty-sixth of the amount which explodes when mingled with air.

Mr. Vernon Harcourt, Mr. Thomas, of Cardiff, and Profs. Barrett and Smithells, took part in the discussion of the paper, and elicited the following further facts from the author of the paper. The proportion of inflammable gas in air is measured not only by taking the height of the cap, but also by noting its appearance, which changes considerably as the percentage of "gas" rises. Further, that the size of the cap produced by a given percentage of gas is increased by the increased temperature and size of the flame. Since air containing less than 1 per cent. of this gas is explosive if mixed with coal dust, it becomes necessary to have a delicate test for gas to insure the safety of dust mines.

THIOSALICYLIC acid is recommended to be used medicinally for the same purposes as salicylic acid. Patents have been applied for, for a process of preparing it from anthranilic acid by converting this into *o*-diazobenzoic acid, treating with hydrogen sulphide, then with sodium carbonate or hydrate, and supersaturating with hydrochloric or sulphuric acid. On oxidation it gives at once ortho-sulpho-benzoic acid free from isomers and, therefore, important in the manufacture of the sweet substance, saccharin.—*Prof. C. Graebe, Apotheker Ztg.; Amer. Jour. Pharm.*

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