should be set apart in each year on which collections in aid of the hospital should be made in every church and chapel throughout the county and town. This was unanimously agreed to, and the last Sunday in January has been fixed upon for the purpose. A regret has been expressed that the hospital alone is to have the benefit of the collections.

METROPOLITAN WATER-SUPPLY: A NEW SCHEME.

AMONG the numerous Parliamentary notices which have duly made their appearance in the *Gazette* anticipatory of the session now entered upon, is one to which, from the nature of the subject to which it refers, and the peculiar circumstances under which it appears, we are desirous of directing attention.

Everybody knows that for a long time past a Royal Commission has had under consideration a variety of schemes, more or less practicable, for giving to the metropolis a supply of water better in quality, more abundant in quantity, and cheaper than that which its inhabitants get at present. The Commission, as we have recently announced on authority, has arrived at the stage of deliberation as to the nature of the report which the evidence received may have warranted, and we are promised that such report will be forthcoming early in the ensuing year. Yet, while this great and important matter is awaiting decision from the high authority to whom it has been referred by the Legislature, a notice appears stating that all the necessary preliminaries have been taken for application to Parliament for a Bill "to effect an improved supply of water within, to, and for the use of the inhabitants of, the metropolis." We are informed upon competent authority that the expenses incident upon the preparation and deposit of plans, advertising, &c., necessarily incurred by the promoters of this undertaking, will hardly fall short of £2000 (exclusive of the deposit upon the estimate required by the standing orders of Parliament to be paid in by the end of this month), so that one would infer an amount of confidence in the ultimate success of the project which we confess is difficult to account for on its merits.

The following condensed summary of the scope of the proposed Bill we extract from the official notification in the *Gazette*:—

"Storage and purification of waters of the Thames above Medmenham; aqueducts, reservoirs, and works for bringing waters to the metropolis; distribution and supply thereof by Metropolitan Board of Works; incorporation of company or body corporate; powers to contract with conservators of the river Thames and the Metropolitan Board of Works and local authorities; powers to those bodies as to works, &c.; purchase of plants, properties, and powers of existing metropolitan waterworks companies; power to levy tolls; removal of mills and weirs on Thames; amendments of Acts, &c."

The proposal involves the purchase of the works and interests of the existing London water companies, and the transfer of the supply to the hands of the Metropolitan Board; to this extent it accords with the views we have often expressed, and which we are hoping will receive the sanction of the Royal Commission. Setting aside the merits or demerits of the London companies, it is now a generally accepted doctrine that the provision of a commodity so important to the health and comfort of the community as water ought not to be dependent on private speculation, but should be supplied in the sole interests of the consumers themselves.

As to the source of the proposed supply, its probable quality and sufficiency, we are bound to say that neither from the notices nor plans deposited, do we draw the conclusion that the problem of the London water-supply is thereby solved. On the contrary, we observe with regret that the Thames, not in its higher and comparatively pure parts, but in its course so low down as between Marlow and Henley, is the source whence the new supply is to be derived. The following powers for purifying and conserving the river are included in the scheme:—

"For prohibiting, from and after a day to be fixed by the Bill, the opening into the river Thames above Henley Reach, or into any navigation, cut, canal, river, or brook flowing into the river above Henley Reach, and within three miles from the said river, any sewer or drain for the flow of sewage or any offensive matter, and for prohibiting from and after a date to be also fixed, the flow or passage into the said river above the point aforesaid, or into any such tributary, cut, canal, or navigation of any such sewage or offensive matter."

And to those who believe in the practicability of ensuring by such (or any other) means the purity of a *navigable* river, having numerous tributaries, and running through or by some large (and many small) towns, villages, and hamlets, to such an extent as to bring its water up to the standard of purity which ought to be insisted upon, the proposed measures will possibly seem sufficient. We do not so believe; and to those who do we recommend an attentive study of the chapters in Dr. Farr's Cholera Report, bearing on the pollution of water by molecular organisms, such as are found to exist in choleraic dejecta. We say, further, that unless the statements contained in that report can be disproved, as they most certainly have not been hitherto, rivers (and especially those navigable in any part of their course) must be regarded as in the main unsafe and objectionable sources whence to draw the drinking water of a population.

As regards the engineering aspect of this new scheme we gather that it is proposed to bring the water from Medmenham by an aqueduct of about thirty-five miles in length, the course of which will be open except for the last three miles nearest London, the fall in the whole distance being only at the rate of about two and a half inches per mile, while the flattest part of the New River course gives a fall of four inches per mile. The aqueduct is to terminate near the new Midland Railway at West End, Hampstead, where there is to be a covered reservoir at the highest point of Shoot-up-hill, the water being forced up into it through a shaft 180 feet in height. Another covered reservoir is to be made on a lower level. These two covered reservoirs will hold together about 70,000,000 gallons —considerably less than the present average daily supply of the metropolis. It seems, indeed, to be in contemplation to provide a separate service for sewer, manufacturing, and other public purposes; but even allowing for that, it is difficult to arrive at any other conclusion than that the storage capacity necessary for the domestic supply (which amounts to 80 per cent. of the whole) is inadequate. It will be remembered that the scheme of Mr. Bateman comprised service reservoirs adequate for ten days' supply at the rate of 200,000,000 gallons per day.

Such are some of the features of the last new project for a metropolitan water-supply whose appearance just now is to us inexplicable on any other ground than that derived from the old adage, "Coming events cast their shadows before." We are free to confess, then, that if the long investigation of the Royal Commission should turn out after all to result in nothing better than the recommendation of a plan such as we have now been discussing, we should be constrained to say of its labours, "*Parturiunt montes, nascetur ridiculus mus.*" We shall meantime hope for better things.

NITROUS OXIDE AS AN ANÆSTHETIC.

AT the meeting of the Odontological Society on Monday last, Mr. Harrison, the Chairman, read a preliminary report of the Committee appointed to investigate the merits of nitrous oxide as an anæsthetic. After alluding to the circumstances which called the Committee into existence—viz., the exhibition of the gas as an anæsthetic by Dr. Evans, in London, in March last, and his donation of £100 for furthering inquiries upon the

subject, the report went on to state that the Committee first performed a large number of experiments upon the lower animals, and then cautiously administered it as an anæsthetic at the Dental and other hospitals, as well as in their own individual practices. The results of their experience thus obtained led them to believe that the agent was, for short operations, as efficient an anæsthetic as any known, and that as far as they were able, from their limited experience—viz., those experiments upon the lower animals, and the recorded statistics of rather more than 2000 administrations—to judge, it was at least as safe as any other at present in use. In no case had any symptoms arisen of an alarming character. In speaking of the advantages protoxide of nitrogen possessed over other anæsthetics, the following were enumerated: rapidity of effects, rapidity of recovery; patients could usually walk, speak correctly, and write with a steady hand within four minutes from the period the anæsthesia was commenced. It was more rarely followed by disagreeable effects; headache and giddiness were rare, and vomiting occurred in under one per cent. of the cases tubulated, and arose in most instances from blood swallowed.

On the other hand, the following disadvantages were mentioned. Its unsuitability for long operations, owing to the transient effects of the gas; and, for the same reason, in cases where, after a severe operation, the smarting and pain would with a more continuous agent be less immediately felt. Other disadvantages named were the expense and the difficulty of preparing as well as of transporting the gas, the more complicated apparatus necessary for the administration of the same, and the greater precautions necessary to ensure certainty in its effects; many of these latter, the Committee felt, would no doubt be soon overcome should the anæsthetic come into more general use.

The Report gave full statistics of 1380 administrations tabulated, the number of each sex and of children, the average time of producing anæsthesia, of anæsthesia and of recovery in each; the number of times it had been given consecutively to a patient at one sitting—viz., six times.

The Committee recommended, after pointing out the symptoms which would probably indicate danger, that the agent should be at once removed, and air freely admitted. In case this should fail to cause free respiration, that artificial respiration should at once be resorted to, their experience upon this head having been obtained from their experiments upon the lower animals.

Were there any cases in which this agent was contra-indicated? It had been given to women far advanced in pregnancy, to persons suffering from phthisis, asthma, and some other affections of the lungs, as well as in cases where, from well-marked arcus senilis and other symptoms, there was every reason to suspect fatty degeneration of the heart. In none of them had there been any symptoms to cause alarm; but of course the agent had been administered in such cases with more than ordinary precaution.

As this was but a preliminary report, the Committee refrained from entering upon the question of the physiological action of the gas, and some others, which they hoped to be able to work out before long, and present to the members of the Odontological Society and the profession at large in their final report. The mode of preparing the gas as recommended by the Committee was described at length, and during the reading of the paper the supply for the next day at the Dental Hospital was generated on the table, and appeared to require hardly any superintendence. The modes of storing the gas, in gasometers, compressed in wrought-iron bottles, as done by Mr. Barth, or condensed into the liquid form in aluminium bronze vessels, as carried out by Dr. Evans, were explained, and the advantage of each commented upon.

Mr. NORTON spoke of the physiological action of the gas. He believed it asphyxiated the patient, as did carbonic acid gas.

Mr. SEWELL supported the views expressed by Mr. Norton.

Dr. SANDERSON differed from the last speakers. The action of nitrous oxide did not produce a condition similar to apnœa. In his experiments on animals he had carefully compared the conditions in each case, registering the respirations and pulsations by the same instrument, and great differences were manifested in the two cases. He expressed himself much pleased with the report, and the fair way in which the Committee had treated the question.

Dr. MARCET fully agreed with Dr. Sanderson that the action of nitrous oxide gas was not that of producing apnœa. He believed it was decomposed in the lungs, and explained upon this hypothesis the various phenomena he had witnessed during its administration.

Mr. COLEMAN felt much hesitation in differing from so great an authority upon physiological chemistry as Dr. Marcet. At the same time he must express his belief that nitrous oxide gas was not decomposed in the blood, and gave chemical and physiological facts in proof of the same. He concluded by stating that practically he endorsed his views by administering the same gas over and over again, providing for the removal of the carbonic acid gas given off from the lungs.

Mr. CATTLIN gave some account of his experiments upon the lower animals. In one case a pig was experimented upon. It was found insensible to pain, but it was by apnœa; for, owing to a mistake, the supply of nitrous oxide had been cut off, and the pig got neither gas nor air.

Mr. CLOVER described his ingenious apparatus for administering the gas, and keeping up its effects in dental operations by admitting it through the nose.

Mr. BRAINE, on behalf of the Committee, mentioned that the gas had been administered to a child of a year old, and to a woman of seventy-five: these were the two extremes contained in the statistics he had worked out.

Mr. HAYNES WALTON asked for some fuller information than that contained in the report respecting its use in surgical operations. The report had confined itself chiefly to dental operations.

Mr. C. J. FOX narrated a case in which he had administered it for twenty minutes, when the female breast was removed by Mr. Carr Jackson.

Mr. Rendall, Mr. Coleman, and Mr. Clover also reported surgical cases of five and six minutes' duration.

A gentleman reminded the meeting of the fact that they possessed local anæsthesia. He had removed a breast to which ice and salt had been employed without any severe pain being felt, and alluded to Dr. Richardson's valuable introduction, the ether spray.

Mr. PORTER (of Messrs. J. Bell and Co.'s), at the request of the President, described a very ingenious plan he had devised for regulating the temperature in producing nitrous oxide gas. As the temperature, and consequently pressure, increased, water was forced up a tube, raising therein a float, which acted upon a lever, and so shut off gradually the supply of gas. The gas was never extinguished; but if it required being safely shut off, or if the bag employed to collect the gas, or gasometer, were filled, a shrill whistle was blown to give alarm.

After a few remarks from the President, the meeting, which was a very crowded one, broke up.

CANCER-FIELDS.

WE had not proposed to return so soon to the consideration of the questions which Mr. Haviland has raised in a paper on which we recently commented; but we are in a manner driven to do so. We have already noticed what seemed to us the rather unseemly publicity which had been given to these speculations by the publication in a non-medical journal of the proceedings of the meeting of the Medical Society of London at which Mr. Haviland's paper was read. This objectionable publicity has now taken larger dimensions, and it becomes a duty to warn the laity, who are quite unable to judge of the soundness of such theories, that, so far from the profession having as yet accepted the propositions respecting the distribution of cancer, phthisis, &c., which Mr. Haviland has put forward, the consideration of them has scarcely so much as begun, and already it is obvious that there are very grave objections to be taken to the manner in which he proposes to prove his case. We have space for no more than a very brief enumeration of the principal of these objections.

1. In the first place, be it noted, that Mr. Haviland has throughout relied upon the figures given in the Registrar-General's tables of mortality for conclusions which cannot be legitimately drawn from them. Not to mention the primary objection of all, that mortality-range is not the same thing as disease-range, the following are most serious:—(*a*) The total number of cancer cases is so extremely small, that we are, in fact, dealing with exceedingly low fractions. So strikingly is this the case that, on examining at hazard the mortality tables for two registration districts with similar geological