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CARCINOMA OF THE HYPOPHARYNX

The treatment of carcinoma in the lowest part of the pharynx, situated behind the larynx and immediately above the junction with the oesophagus, presents a surgical problem of great complexity. The primary functions of respiration and deglutition have to be maintained, and, if possible, it is most desirable to provide for phonation also by preserving the larynx. Further, the treatment planned must take into consideration the common routes of extension and the usual sites of metastases, besides the difficulties in controlling septic infection inherent in the surgery of the pharynx. These tumours, which are not very rare, occur chiefly in women immediately behind the plate of the cricoid cartilage, but there is also a male group in which the tumour is situated on the posterior pharyngeal wall. In women the tumours often arise a decade or two before the time at which carcinoma usually appears, and are constantly preceded by a long period of slight dysphagia. Early diagnosis is therefore exceptional, and the growths tend to spread down to the cervical part of the oesophagus, up towards the pharynx, and laterally into the thyroid gland before the nature of the complaint is recognized.

The discussion of this subject, initiated by Mr. Wilfred Trotter at the Laryngological Section of the Royal Society of Medicine on December 4th, provided an opportunity to review the various therapeutic measures, any of which may give a brilliant result, but are more often unsatisfactory owing to the situation and character of the disease. The most drastic surgical operation is that devised by Professor Gluck. The entire larynx, with a complete segment of the lower pharynx, is removed, along with the cervical lymphatic glands of both sides; the pharynx is reconstructed six months later by a plastic operation, and the patient is left with a tracheal stoma as after a simple total laryngectomy. Professor Gluck has long advocated this operation, on the ground that no attempt to preserve the larynx is compatible with a reasonable expectation of freedom from recurrence, and that the separation of the airway from the pharynx is a protection against inhalation pneumonia. Although a severe mutilation is produced by the operation, it is capable of giving a brilliant and lasting result. In this country, however, Mr. Trotter has long protested against laryngectomy, and has advocated an operation which removes the tumour and its extensions freely, but retains both the larynx and the pharynx as far as possible, the portions removed being reconstructed by means of skin flaps. Mr. John Hunter gave an account of the technique to be followed in the varying circumstances which may arise in such undertakings, devoting himself to this aspect of the question

in greater detail than Mr. Trotter, who gave a general description of those pharyngeal tumours which take origin around the larynx, and of the principles underlying their surgical treatment. He related a number of cases in which the patients had survived many years without recurrence and without serious mutilation.

Professor Carl von Eicken of Berlin also gave a general review, in which he outlined the pathology of tumours which arise in the hypopharynx. They differ from those of the epilaryngeal group, which grow more slowly and form metastases later than do tumours which originate in the sinus pyriformis and lowest part of the hypopharynx. Microscopically, many of these tumours are of the anepidermoid or mucous type of epithelioma, indicating that a certain proportion might prove sensitive to ray therapy. He considered that on the whole purely surgical treatment was unsatisfactory on account of the technical difficulty of the operations, the mortality from sloughing, cellulitis, and pneumonia, and the necessity for subsequent plastic operations. He had therefore sought a solution of the problem in radiological treatment, and related some encouraging results. The application of radium to tumours of the hypopharynx can be carried out either by external application with a pack or in combination with surgery. The latter method had been used in eleven cases without producing any complication, and in two cases the tumour had disappeared, leaving the patients free from symptoms, whilst in five of the remaining nine the tumour had diminished in size. He had no personal experience of radiotherapy by deep x rays, but he thought that the method of Coutard, who employs protracted fractional doses by exposing the patient to treatment for one hour daily over a period of three weeks, was very promising. Coutard claimed 20 per cent. of permanent cures, a better result than could be claimed for surgical intervention.

Mr. Douglas Harmer admitted that so far the results of deep x -ray therapy had been disappointing, but he thought that a combination of surgery and radium with deep x rays, provided by an apparatus of the requisite strength, would show improved results. He gave a warning about the stimulating effect on tumour growth of inadequate x -ray treatment. Mr. Mollison also described what has been accomplished by the deep x -ray department at Guy's, where an apparatus of sufficient power is available. The discussion tended to show that in the hands of Mr. Trotter the surgery of this region has reached its zenith. Those, however, who hold that any further advance in treatment is likely to be along lines which are not purely surgical would do well to bear in mind some words used by that surgeon a few weeks ago: "It is commonly supposed that the use of radium has greatly simplified the treatment of epithelioma of the pharynx. This supposition is not true. Radium has given us a new and very powerful addition to our means of attack, but so far from simplifying the attack has made it more than ever dependent on experienced judgement and expert handling. It is possible even that up to the present time the total

results as to cure or notable periods of freedom from recurrence are actually worse for the introduction of radium, since it seems likely that many patients who might have had a good chance of cure by operation in competent hands have had their chance frittered away in ineffective radium treatment. If this is so it is, of course, only a transient phase, for a proper appreciation of the technical requirements of sound radium treatment is already replacing the cruder view and must in time result in the full benefits of radium being made manifest."¹

The general conclusion reached at last week's meeting may be summed up as follows. In relatively early cases, where the larynx, the thyroid gland, and the upper end of the oesophagus have not been invaded, the treatment of choice is the operation of Trotter. A segment of the pharynx containing the growth is excised and replaced by a flap of skin turned into the wound from the surface of the neck. In more advanced cases the operation of Gluck is capable of giving the patient a long period of freedom from the disease with a tolerable functional condition, but with the sacrifice of the larynx. On the other hand, where no operation can be undertaken, or when it is declined, the use of deep x rays or of radon seeds, implanted around the tumour either into an open wound or through the skin of the neck, may provide great relief from dysphagia or even a long period of freedom from active disease. Even if the initial treatment be successful, whether it be surgical or radiological, it is unfortunately not improbable that the patient will succumb in the end either to a local recurrence or to invasion of the mediastinal glands. Nevertheless, we may echo the hope entertained by Mr. Trotter "that the number of cases of the severer type will diminish when the natural history of these growths becomes more generally known, and it is learnt that diagnosis is usually easy at an early stage if one knows what to look for."

SERO-DIAGNOSIS OF SYPHILIS

Uruguay is to be congratulated on having staged a serum conference at Montevideo last year in continuation of those held at Copenhagen in 1923 and 1928. The diagnosis and determination of cure of syphilis by serum tests are so important, and at the same time so difficult, that every encouragement should be given to those who are anxious to improve and correlate the methods at our disposal. The campaign against syphilis—only really launched at the beginning of this century—depends very much for its success on perfecting the various serum reactions. So long as pathologists remain in watertight compartments, carrying out their own favourite reactions, little progress will be made. It is only by getting them together and comparing their results—both with each other and with the clinical findings—that the relative value of the various methods can be assessed. In this conference twelve methods

were considered—namely, seven modifications of the Bordet-Wassermann, four flocculation, and one sero-haemo-flocculation. It will be useful to compare these with one another in respect both of sensitiveness and of specificity.

Four of the Wassermann methods, one flocculation, and the sero-haemo-flocculation method gave such a high percentage of false positive results that they may be dismissed at once. The Kahn "presumptive" test gave by far the highest percentage of positive results in syphilitic serums, with three false positives in non-syphilitic ones, while it held its own with the other tests in the case of cerebro-spinal fluids, but gave four false positives out of 142 non-syphilitic specimens. Its principal value, therefore, is as a test of cure and to exclude syphilis—for example, in blood donors. There remain three Wassermann methods (Scaltritti-Cassiniga, Sordelli-Miravent, and Wyler) and two flocculation methods (Kahn "standard" and Müller—M.B.R. II). Of these the Kahn and Wyler are outstanding as having yielded no false positives in the whole series of 966 serums and 200 cerebro-spinal fluids—a very remarkable achievement. The Kahn test, however, was much the more sensitive, giving 63.9 per cent. as against 54 per cent., and 35 as against 28 positives in syphilitic serums and cerebro-spinal fluids respectively. The Müller (M.B.R. II) reaction came out very well in respect of sensitiveness, but gave two false positives on serums and one on a cerebro-spinal fluid. Of the three Wassermann methods none recorded a false positive on a serum, while their percentages of positives on syphilitic serums were: Sordelli-Miravent, 55.9; Wyler, 54.4; Scaltritti-Cassiniga, 49.9. In the cerebro-spinal fluid series the Sordelli-Miravent method was not employed; Scaltritti-Cassiniga recorded 39 positives out of 52 in syphilitic cases, and one false positive out of 147 non-syphilitic; Wyler out of 53 syphilitic cases recorded 28 positives, and had no false positives in the non-syphilitic group; moreover, he had 10 "doubtful" reactions in the syphilitic group, which would probably have been recorded as weak positives under less exacting conditions, since he had none among the non-syphilitics. Speaking generally, the complement-fixation reactions quite held their own with the flocculation reactions in the case of cerebro-spinal fluids; this is a matter of some importance, since the Kahn test, for example, is laborious to carry out on cerebro-spinal fluids, and does not work well with specimens which are not clear; such specimens are, unfortunately, all too common in everyday practice.

To sum up, the Kahn standard test must be given the palm both for specificity and for sensitiveness. Of the Wassermann methods three proved almost equally reliable, though not quite so sensitive as some of the flocculation tests. However, in view of the fact that in a certain number of cases of syphilis the Wassermann reaction was positive when the flocculation test was negative it would appear that, as a routine, two methods—one a Wassermann test and one a flocculation—should be employed on all serums. This was recommended after the Copenhagen conference in 1928, and

¹ Wilfred Trotter: Some Principles in the Surgery of the Pharynx. Address at the Central London Throat Hospital. *Lancet*, October 17th, 1931.

also after the conference under consideration. An interesting side-line was the testing of twenty-seven serums from cases of leprosy; about one-third of these gave positive results in the hands of most of the workers. A general agreement was obtained as to the recording of results: ++ or + indicating a positive, ± a doubtful, - a negative. If pathologists all over the world would adopt his method a good deal of doubt and misconception would be avoided. The value of the conference cannot be overestimated, but there is one point which does not seem to have been discussed, and that is a really good eliminating test. What is needed is a highly sensitive test—easily and quickly carried out, and applicable to large numbers of specimens. This might be used as a routine; then those serums giving positive results might be tested further by one or other of the methods that have been proved satisfactory. This would save a vast amount of time for those pathologists who have large numbers of specimens to deal with.

The report of the Montevideo conference is well got up and clearly printed.¹ Tables are included giving a summary of the results obtained by the various serological methods, and also the detailed results obtained on each individual specimen. Each specimen was divided up among the various workers and labelled only with a number, so that its origin and the clinical diagnosis were not disclosed till the end.

THE HISTORY OF ERGOT

The history of drugs is in many cases a long and curious story that runs back to classical times and even earlier. This interesting subject suffers, however, from an undeserved neglect, because few people have either the patience or the varied knowledge necessary for its pursuit. The history of ergot begins with the epidemics of ergotism, one of the many horrors, now half-forgotten, that afflicted mediaeval Europe. Professor Barger² has given a full account of these epidemics from the ninth to the nineteenth century, with numerous quotations from original documents and interesting mediaeval pictures depicting the evil effects of ergotism. These epidemics were of two kinds, the gangrenous and the convulsive, and the reason for this distinction has, until recently, been a mystery; but investigations by Mellanby suggest that convulsive ergotism may have been due to ergot poisoning combined with lack of vitamin A. Professor Barger shows by quotations that clinical observers in the past were convinced that convulsive ergotism could be prevented by the addition of butter and eggs to the diet. Hence, a half-forgotten clinical observation has been confirmed and explained by recent scientific work. The tragic experience of epidemic ergotism led to recognition of the abortifacient action of ergot, and the drug, first used as a folklore remedy, was finally recognized and employed by the medical profession. Professor Barger's account of the chemistry of ergot has special importance, because the

author is one of the chief authorities on this subject. Chemical research on ergot, while presenting great difficulties, has yielded results of extraordinary interest, for the fungus has proved to be a veritable storehouse of substances of first-rate biological significance. The specific alkaloids are the substances to which the drug owes its clinical value; moreover, it was in this material that histamine and ergosterol were first discovered. Professor Barger, indeed, concludes that the general interest of ergot is greater than that of any other drug. Barger and Carr found that the chief active alkaloid of ergot of rye was ergotoxine, and this has been confirmed recently by Smith and Timmis. Stoll, however, found that ergotamine was the chief alkaloid present. One point of considerable practical interest in the clinical use of ergot is that, since the introduction of ergotamine, a number of cases of severe gangrene have been attributed to it by certain authors. Chapters on the chemical and biological assay of ergot, the sources of supply of the drug, and the methods used for estimating whether ergot-infected rye is suitable for human consumption, conclude the monograph. It therefore deals with a wide variety of subjects, and provides a remarkably complete and very interesting account of the use of ergot as a drug and of its action as a poison.

PARASITOLOGY IN CHINA

Modern parasitology is very intimately connected with China. It was there, in 1878, that Patrick Manson carried out the fundamental work on filaria which introduced to medicine the conception of the biting intermediate host. It was there that Leiper, in 1913, found the clue to the life-histories of the African blood-flukes, and later it was there, too, that Faust and Cort and other American workers conducted some of their most important researches. That China, though no longer a virgin field, still offers an inexhaustible wealth of material for scientific research, is well shown by the August-October number of the *National Journal of China*, which is entirely devoted to original articles on protozoa, helminths, fungi, and their treatment and prophylaxis. The wide ground covered by the twenty-two articles indicates that China's own sons are now giving parasitology the attention it merits. In a leader the editor discusses the general ignorance of medical practitioners on the subject. This he believes is due to the fact that students returning from abroad know little or nothing about parasitology because it is either omitted entirely or else inadequately taught in the ordinary medical schools. Except in countries with tropical possessions, it is not considered advisable to burden the medical student with what is unnecessary for his future career. Even in countries with tropical possessions parasitology is not included in the ordinary medical curriculum to any extent, but is reserved for study in post-graduate diplomas. Undoubtedly this criticism is true, but in these days of overcrowded curricula it seems unfair to suggest adding to the ordinary course instruction which only has an extraordinary application, and which in any case is provided for in special courses intended for medical men proceeding to the Tropics. There are three such courses in Britain—in London, Edinburgh, and Liverpool—and these seem to meet most requirements. The criticism is, however, more to the point in suggesting that what

¹ League of Nations. Health Organization. Report of Laboratory Conference on the Serodiagnosis of Syphilis, 1930. Geo. Allen and Unwin, Great Ormond Street, W.C.1. (3s. 3d.)

² *Ergot and Ergotism*. By George Barger, F.R.S. London and Edinburgh: Gurney and Jackson. 1931. (15s. net.)

little parasitology is necessarily included in our M.B. courses is not adequately, and often not even accurately, taught. There should be no excuse for lack of accuracy in the teaching of the subject in this country: only half a dozen worms or so are important, and sufficient information can be easily obtained; and yet the most profound ignorance persists. The real solution of China's problem would seem to lie in the provision of more and better local instruction. The position is appalling. In a commencement address at Peiping by Hu Shih (reported in the same issue) it is pointed out that the proportion of modern-trained doctors to the population in the interior cannot be more than one to every million inhabitants. In the old days the Chinese doctor could, somewhat empirically, prescribe for the more common diseases; but he is quickly dying out without being replaced, because the products of the modern secondary school are unwilling to master the mysteries of the ancient profession, which they know must sooner or later give way to the modern medicine from the West. In Hu Shih's own district a population of half a million people is relying in matters of life and death on an opium-smoking quack doctor. The need for modern physicians is extreme in the interior, where curable diseases and preventive epidemics kill thousands, and where millions of lives are resigned to fate and ignorance. In her efforts to solve the problem China has a right to expect assistance from the modern medical science of the West.

FOOD PRESERVATION

It is only about fifty years since the first consignment of frozen meat from Australia was delivered in sound condition at the London docks. In this brief period an industry has grown up which now employs over a thousand vessels, with a total cargo capacity of about a million tons. These figures, which are given in an introductory note to the first number of vol. iii of the *Index to the Literature of Food Investigation*,¹ issued by the Department of Scientific and Industrial Research, are instructive from several points of view. We are not here concerned, however, with their political, economic, or sociological implications, but with the need they suggest for continuous scientific research in preserving the quality and freshness of the natural product. In this connexion the publication referred to above contains some illuminating information, which reveals incidentally how various branches of inquiry are being turned to practical account. Thus, Tadokora and Watanabe in Japan are reported to have made some interesting observations on the chemistry of fish muscle; while Linneweh and his co-workers have investigated the constitution of "anserine" and its presence in the muscles of different birds. In this country the importance of physico-chemical considerations to storage problems was indicated at the meeting of the Faraday Society held at Cambridge last year, when reference was also made to work on the double refraction of muscle. "It not only promises to close the century-old controversy about the structure of striated muscle fibres, but also reopens that too much neglected theory of the structure of fluid which began with Poisson and seemed to end with Poynting." In

¹ Compiled by Agnes Elisabeth Glennie, B.Sc. H.M. Stationery Office. 1931. (2s. 6d. net.)

regard to by-products a bulletin issued by the Hannah Dairy Research Institute, describing an inquiry into the utilization and marketing of surplus milk and milk residues during 1926, concludes that the amount of separated milk wasted in Scotland was sufficient to furnish the whole of the Scottish imports of condensed separated milk. Another subject that has been recently investigated by various workers is the deterioration of animal and vegetable fats on storage. It has been found that the three main factors responsible for the production of objectionable taste, odour, and appearance are moulds and bacteria, atmospheric oxidation, and tissue enzymes, and that any combination of these may cause rancidity. Studies on the gas storage of fruit appear to have shown fairly conclusively that this method of preservation has become a commercial proposition, and attention is now being directed, especially in America, to the effects of cold storage, canning, dehydration, and preservatives on the vitamin content of fruits and vegetables.

SIR BENJAMIN WARD RICHARDSON

In exhibiting a flagon from Sir Benjamin Ward Richardson's wine cellar at the Section of the History of Medicine of the Royal Society of Medicine on December 2nd, Dr. J. D. Rolleston said that his object was to put an end to a legend connected with Richardson, who died in 1896, and was at once an eminent consulting physician, sanitary reformer, and antiquarian. Although his work and even his name are unknown to a large proportion of the medical profession to-day, his memory, according to Dr. Rolleston, is still kept alive by those interested in such apparently heterogeneous subjects as the alcohol problem, in the scientific investigation of which he was a pioneer, the establishment of model abattoirs, and medical biography. Among some of the older members of the profession, including several of Richardson's successors in the chair of the Medical Society of London, the legend has long been current that Richardson, with the fanatical zeal of a teetotaler, had poured down the sink the contents of a priceless wine cellar which had been left him by the celebrated naturalist and antiquarian, Sir Walter Trevelyan, to be applied for scientific purposes. The contents of the cellar, as Richardson relates in *Macmillan's Magazine* of January, 1880, consisted of twenty or twenty-one specimens of wine, spirits, and beer. Very many bottles were half empty, and their corks destroyed, on their delivery to Richardson, but about sixty dozen were in a good state of preservation. Richardson was much embarrassed by the gift, though he had no lack of suggestions as to how he should dispose of it. Nothing, however, was done, and the bottles, with their contents, remained intact in the possession of Richardson's family, who last July sent a large consignment to the late Professor W. E. Dixon at the Pharmacological Laboratory at Cambridge, where they still remain, Dixon's untimely death having taken place before an examination of the contents of the bottles could be made. The flagon exhibited by Dr. Rolleston was estimated by the authorities of the Victoria and Albert Museum to date from about 1820 and to be of Austrian or Bohemian origin. According to Dr. J. E. McCartney, its contents consisted of 140 c.cm. of muddy dark-brown fluid,

which had probably been a full rich wine with a fairly high alcoholic strength, such as a good Burgundy. Owing to a defective cork, however, evaporation had taken place, and the alcohol had disappeared, either from evaporation or conversion into esters.

RADIUM IN MALIGNANT DISEASE

In a recently issued publication of the Medical Research Council,¹ a comprehensive account is given of the results of radium research in the treatment of cancer and other malignant conditions during 1930. This report, the ninth of its kind, summarizes the work of the Council's thirteen research centres, and takes up the story at the point reached a year ago. Before considering the results obtained from individual centres, the report opens with a brief review of the present position of radium in relation to cancer therapy. The probability of success by this method of treatment depends, as might be expected, on the site of the disease and the early or late manifestation of the growth. At the present moment the breast, cervix uteri, and buccal cavity offer the most promising fields for radium therapy. While in rectal cancer little progress has been made with treatment solely by radium, cases are reported in which advanced growths have been rendered inactive, mobile, and therefore operable as a result of initial radium treatment. The problem of the oesophagus, nevertheless, remains unsolved. The general impression gained is that while radium has a recognized place in the treatment of cancer, its exponents have to rely to a large extent on the selective action of the radiation used. Up to the present no method has been discovered by which malignant cells can be made more radio-sensitive, if we except variations in the time factor. Any successful step in this direction would have wide-felt effects. When due allowance is made for the technical difficulties of treating malignant growths, there seems to be, normally, a considerable range of sensitiveness to radiation among the many varieties of cancer cells. Only further research can show what the expectations in radium therapy may be.

SCIENTIFIC AND TECHNICAL ABSTRACTS

A conference on scientific abstracting service was recently held at the Imperial College of Science and Technology at the invitation of Mr. H. T. Tizard, president of the Association of Special Libraries and Information Bureaux. The object of the meeting was to exchange experience and to discuss methods, not with a view to advocating standardization, but in order to produce a body of information which could be utilized to mutual advantage. The conference unanimously approved of ascertaining the methods employed by societies and industrial undertakings for collecting and reviewing foreign publications. A small committee was appointed to issue a questionnaire to abstracting organizations and information bureaux, and to summarize the replies. One of the main objects is to try to provide a more complete and prompt review of foreign scientific and technical publications, especially in the less understood languages, such as Russian and Japanese. The committee will attempt to indicate precisely what methods have been found successful or ineffective, and

¹ Medical Research Council. Special Report Series, No. 160. Medical Uses of Radium. Summary of Reports from Research Centres for 1930. H.M. Stationery Office. 1931. (9d. net.)

to analyse the collected experience and opinions. It is hoped that all firms and societies which maintain such organizations will help to promote the efficiency of scientific abstracting in general by taking part in the survey. Copies of the questionnaire may be obtained from Mr. S. S. Bullock, secretary of the Association of Special Libraries and Information Bureaux, 16, Russell Square, London, W.C.1. Replies should, if possible, be received not later than the end of the year.

RESEARCH DEFENCE SOCIETY

Among his many activities the late Lord Knutsford was chairman of the Research Defence Society, a national society of men and women united to promote the health and well-being of the community by bringing about a better understanding of the value of medical and scientific research. To find a successor to Lord Knutsford was no easy task, but the society announces now that the Hon. Sir Arthur Stanley, chairman of the Executive Committee of the British Red Cross Society, and treasurer of St. Thomas's Hospital, has accepted the office. Lord Knutsford had been chairman since the foundation of the society in 1908, and during his term of office he rendered signal service to medical progress by his ardent support of medical research in our hospitals and universities, and, moreover, by his insistence that such work should not be hindered. In Sir Arthur Stanley the Research Defence Society has again secured the services of a man whose life is devoted to the cause of suffering humanity. The society also announces that Professor A. V. Hill, F.R.S., has been appointed vice-chairman, which office has not been filled since the death, in 1926, of Stephen Paget, F.R.C.S., the founder of the society.

POSTURE IN YOUTH

The importance of posture as a sign of correct or faulty muscular balance and tonic action has been long insisted upon by Goldthwait and others in America, and by Dr. M. Forrester-Brown in this country. The lack of a guide to school teachers and those in charge of cripples' clinics in the teaching of exercises intended to develop and strengthen the faulty muscles and restore tone, has been for some time felt. Miss L. S. Rolleston and Lieut.-Colonel W. K. Steele, R.A.M.C., have compiled a very short and simple guide for the use of the Devizes Orthopaedic Clinic.¹ To this Dr. Forrester-Brown has written a foreword in commendation. The chief points aimed at in the exercises are: to reduce exaggerated curves of the spine; to strengthen the abdominal muscles; to develop the capacity of the chest; and to teach the fullest type of breathing. This guide, with its many illustrations, should certainly help teachers to attain the desired ends.

An editorial paragraph in the *Canadian Medical Association Journal* congratulates Professor W. Harvey Smith on receiving the honorary degree of LL.D. from McGill University at its last quinquennial celebration. All members of the British Medical Association who took part in the Annual Meeting at Winnipeg last year under his presidency will be pleased to hear of this honour conferred on Professor Harvey Smith.

¹ *School Orthopaedics: A Guide for Teachers*. George Simpson and Co., Devizes, Ltd. (2s.)