Those who saw this operation expressed surprise at the very free access given to the naso-pharynx and back part and roof of the nose. The extreme shock attending these operations was probably largely contributed to by removal of structures from the base of the skull.

Its obvious disadvantages are, in the first place, that the scar is on the cheek, although it is not a long one; secondly, that some fibres of the facial nerve going to the lower part of the face and angle of the mouth are divided; but these must be put against the alternative of excision of the upper jaw. Lastly, there is some difficulty in dealing with the parotid duct.

Since writing the above, I have carried out on the cadaver an operation of osteoplastic resection of the maxilla which has none of these disadvantages. The operation is much the same as for removal of the maxilla in the ordinary way. The vertical or Fergusson's incision is employed, the horizontal limb being carried as far outwards as the spheno-maxillary fissure. The level of this incision at its outer extremity should not be higher than $\frac{1}{4}$ in. above the lower margin of the malar bone, or the fibres of the facial nerve to the orbicularis may be divided. The malar bone and the hard palate are divided with a Gigli saw as in the first operation described, and the nasal process with bone forceps. The soft palate is severed from the hard; finally the mouth is opened, and a chisel is driven vertically upwards between the tuberosity of the jaw and the pterygoid processes. With an elevator passed between the cut surfaces of the hard palate, the maxilla is forced outwards and turned outwards on the hinge formed by the soft parts of the cheek. After removal of the growth the maxilla is replaced, and a style passed down the lacrymal duct to preserve its continuity. No important structure has been damaged.

It may be noted that in both the above operations the orbital plate is not severed from the body of the bone, but the periosteum is carefully raised from the floor of the orbit. I have found that the maxilla can be turned more cleanly from its bed if the continuity of the orbital plate is undisturbed. The external carotid artery having been tied in both my cases, there was very little hæmorrhage. The first method of osteoplastic resection of the maxilla gives, if anything, the freest exposure of the naso-pharynx.

For extensive malignant growths of the naso-pharynx many procedures have been adopted. Cheyne recommends removal of the upper jaw, the floor of the orbit and the muco-periosteum of the hard palate being preserved. This of course gives plenty of room, but involves the loss of the maxilla. Annandale divides the alveolar process and palatal portions of the upper jaw along the median line from before backwards, severs the bony septum, and then forces the two maxillæ asunder. This operation gives so little space that it is quite useless for the removal of any extensive growth. Langenbeck introduced a method of osteoplastic resection of the upper jaw by making two horizontal cuts through the bone. The lower cut passes horizontally through the upper jaw above the alveolar process; the upper cut passes through the frontal process of the malar bone as far as the spheno-maxilla fissure, and then on through the orbital plate and nasal process. The zygoma is also divided (see Fig. 2, *b*, *b*, *b*). The skin incision, in the form of a flap with its base towards the nose, corresponds with the osseous incision (see Fig. 1, *a*). By means of an elevator inserted under the malar bone the portion of the upper jaw outlined by the saw cuts is turned forwards towards the middle line, and, after removal of the growth, replaced. This method gives access only to the upper part of the naso-pharynx by a small window, is difficult to perform, and the scar very unsightly.

I consider Nélaton's operation a good procedure for the removal of limited growths on the roof of the naso-pharynx, and performed it in the following case: A gentleman, aged 45, was seen by Mr. Mark Hovell for deafness. A large mass of tissue was found in the upper part of the naso-pharynx which on microscopic examination proved to be a lympho-sarcoma. Preliminary laryngotomy having been done, the soft palate and the posterior half of the hard palate were split along the middle line, the latter reflected from the bone, and a longitudinal opening was made through the posterior half of the bony palate with chisel and bone-cutting forceps. The growth could then be well seen with the head lamp. It was freely removed

with scissors and punch forceps. Its base and the surrounding tissues were destroyed with the thermo-cautery. The edges of the hard and soft palates were then united by sutures. The operation was performed in June, 1905, and the patient is now free from recurrence.

Such operations as Chalot's and Guérin's, also Kocher's method of temporary resection of the whole alveolar arch, may be relegated to the obscurity of the past.

[Mr. Eve then made some observations on removal of malignant disease of the tonsil. He favoured excision by an external incision in all but the earliest cases, otherwise infected tissue between the tonsil and the glands was not removed. He had excised the tonsil for epithelioma 6 times, with 1 death—4 times by Mikulicz's method and once through the mouth by splitting the cheek; on the last occasion he had carried Mikulicz's incision well forwards beneath the jaw, and found that a free exposure of the pharynx could be obtained by this means without resecting the vertical ramus. The latter procedure was sometimes followed by difficulty in opening the jaw, although it was claimed by some writers that resection of the ramus prevented this sequel. For some years he had performed preliminary laryngotomy, ligature of the external carotid, and removal of the lymphatic glands as a necessary part of all procedures for removal of malignant growths of the regions under consideration. During the last two or three years he had removed the tonsil or soft palate or both together for extensive malignant disease, after preliminary laryngotomy and ligature of the external carotid, in 6 cases with 1 death.]

TRYPSIN IN CANCER: A PRELIMINARY STATEMENT.

By WILLIAM SEAMAN BAINBRIDGE, A.M., M.D.,
NEW YORK.

HUXLEY has aptly said, "The man of science has learned to believe in justification, not by faith, but by verification." Until such time as verification is complete, the scientific attitude must ever be that of "suspended judgement." "Prove all things, hold fast that which is good," is the tentative watchword of every seeker after truth in whatsoever department of human endeavour he may be labouring. Over-enthusiasm and premature conclusions have always been a menace to scientific investigation, bringing in their wake as much harm, at times, as wilful misrepresentation; the pitiable part of it all being that it reacts upon the unfortunate ones whose sufferings it is our earnest aim to prevent or to alleviate.

The world to-day is watching, with keener interest than ever before, the warfare that is being waged against malignant disease. Thousands of cancer victims are listening with bated breath for the slightest word of hope of amelioration or cure by other means than surgery. How many times in the past, alas, have they been disappointed—the new agent apparently so full of hope has proved a mirage! Despite these many disappointments each new remedy which seems to offer reasonable hope of benefit, without doing harm, should, in suitable inoperable cases, be tried by those who are competent in this field of research. Whatever laboratory experimentation may be necessary in the development of a given method of treatment, in its last analysis the new remedy must be applied to the human being for the final test of its efficacy. In the treatment of cancer ample opportunity is afforded for such test with cases which are no longer amenable to surgical interference; but it should always be borne in mind that between the starting-point, "no evidence," and the hoped-for goal, "a cure," there may be many way-stations of usefulness.

For some months the pancreatic enzymes in the treatment of cancer have engaged the attention of the medical press, and both here and abroad systematic efforts are being made to determine whether the so-called trypsin treatment shall rest at the initial stage of the journey, be advanced to some one of the way-stations, or be carried in triumph to the final oft-promised land of cure. Dr. Beard, the originator of the method, has made it plain that it is his great desire to have his treatment thoroughly tested, along the exact lines which he himself has laid down, and that he is willing to abide by the consequences.

From May to September, 1906, I employed trypsin in a few cases according to the plan reported in the medical journals. The results were unsatisfactory. Further knowledge on the subject has shown me that in my first efforts I omitted many of the essential details, and that the treatment was not applied in strict accordance with the theory upon which it is based. However, after visiting Dr. Beard in September, 1906, and making myself thoroughly conversant with all the details of the method, I determined to begin *de novo*, and to give the treatment a scientific trial, which would determine absolutely whether it is to be thrown into the junk-heap of cast-off "cancer cures" along with Doyen's serum, Schmidt's serum, Morton's "liquid sunshine," and the rest, or be elevated to a place of distinct usefulness.

Needless it is to say that a few months' trial in a limited number of selected cases cannot suffice to for ever settle the claims of any method of treatment for cancer, with its ever-dangling sword of Damocles, *metastasis*, to shadow our hopes of ultimate cure. In justice to the earnest, truth-seeking element of the profession both here and abroad, in justice to cancer sufferers the world over, in justice to Dr. Beard, and lastly to myself, I find it necessary to write as I do now, in advance of further definite information. To remain silent longer would tacitly give assent, on my part, to much that is misleading. My name has been mentioned repeatedly, and without my will, in the lay press as well as in medical journals on both sides of the Atlantic, in connexion with a reported case claimed to be "a remarkable one clinically, on account of the decisive action of trypsin upon the cancer, and pathologically on account of the opportunity which the operation [performed by me] presented of making a microscopic examination of the actual changes produced by trypsin in cancerous tissue."

The case referred to is No. 1 in Dr. Morton's article, *Trypsin for the Cure of Cancer*, published in the *Medical Record*, December 8th, 1906, of which he says, "A most remarkable atrophy of an entire cancerous breast ensued," and in his summary, "A remarkable process of retrogression by degeneration and atrophy of a carcinomatous breast gland to final and curative obliteration has been microscopically demonstrated."

Dr. Morton's report, which was published in advance of a thorough study of the entire tumour mass, and against my most emphatic advice, was immediately commented upon widely by the secular press, and a marvellous new "cancer cure" was heralded to the world. Dr. Saleeby, a well-known writer on medical and scientific subjects, became over-enthusiastic in his articles in the *Pall Mall Gazette* of December 10th, 1906, and in *Harper's Weekly* of January 19th, 1907. In the latter paper Dr. Saleeby says:

The first case of Professor Morton's is the most valuable, because of the completeness of the demonstration. In no other case in America has it been possible to examine, under the microscope, the results of the treatment of a tumour by trypsin.

All this is most unfortunate, since the facts, at least as they pertain to Case 1 (upon which greatest importance seems to be laid by Dr. Morton and those who have commented upon his report), do not warrant the slightest enthusiasm as regards cure.

While this case is full of disappointment, it presents certain features which give sufficient ground for further careful trial of the pancreatic treatment. Many other cases now under treatment at the New York Skin and Cancer Hospital and elsewhere encourage us to go forward in the hope that a valuable agency may be within our reach.

Let it be understood that the present communication is in no respect a report on trypsin. The writer, as has been stated, has been giving the treatment a trial since October, 1906, by means of the enzymes, trypsin and amylopsin, with the adjuvant remedies and the dietetic and hygienic regulations advised by Dr. Beard, but it will be many months before the detailed reports of these experiments will be published in full. In the meantime I wish to give the facts in the case mentioned in order to warn against premature conclusions, and the arousing thereby of false hopes in the minds of cancer victims.

Summary of History.—The patient, K. H., first noticed a lump the size of a small marble in the outer quadrant of the left breast in October, 1903. I saw her at this time in consultation with Dr. E. W. Peet, of New York, to whom I am indebted for careful notes on the subsequent history of the

case. Indistinct history of cancer on both sides of family. Sister died of multiple sarcomata. Operation was advised but refused. The growth, which measured $1\frac{1}{2}$ in. $\times$ $\frac{3}{4}$ in., increased slightly in size, until removed by Dr. Peet in 1904 (operation No. 1). Radical operation was positively refused. Wound healed by primary union. Convalescence uneventful. The diagnosis of beginning carcinoma was verified by the independent microscopic examination of the tumour by two reputable pathologists.

In the late spring of 1905 a secondary growth appeared in the breast, to the inner side of the site of the first. By the end of June enlarged axillary glands could be made out. Radical operation was again advised and absolutely refused. The patient subsequently consulted Dr. Morton, who, according to his report of the case, gave her thirty-two x-ray treatments. Eight months later she again consulted him, at which time he instituted the trypsin treatment, beginning with 5 minims and increasing to 10 minims, the injections being given three times a week (see Dr. Morton's article, to which reference has been made).

On October 9th, 1906, the patient consulted me with reference to operation. Condition at this time was as follows: Typical large scirrhous carcinoma of the left breast, with considerable ulceration around the nipple, enlargements of the lymph nodes well up into the axilla, a certain amount of contraction of the skin, and in spots secondary skin deposits for a short distance around the main mass.

From October 9th to November 3rd, 1906, there had been a distinct increase in the ulceration and in the axillary involvement. The patient complained of increased pain. No treatment was given during this interval.

With the full concurrence of the physicians with whom K. H. had been in professional relations, and with a perfect understanding on the part of the patient and family of the gravity of the case, I operated, November 3rd, 1906, assisted by Dr. Peet.

Operation 2.—The entire breast, with the skin, was excised down to the posterior axillary line, with the removal of both pectoral muscles and the entire lymphatic and connective tissue content of the axilla, up into Mohrenheim's space, as high as could be reached. Even the periosteum covering the ribs directly under the seat of the most marked ulceration was removed. The diseased structures were excised from the middle line of the chest to the posterior axillary line. Skin flaps from the right and left half of the abdomen and the left side of the back were brought over the denuded surface, which was completely covered, with the exception of a space about 2 in. square in the centre. The sutured wounds united by primary union and the uncovered area gradually healed by granulation.

Shortly after the operation nodules of lymphatic metastasis appeared in the neck posterior to the sterno-cleido-mastoid muscle, and a number of small nodules developed in the skin at the upper part of the wound. This proved conclusively that the malignant process was still active and that the trypsin treatment given by Dr. Morton was inadequate to stop its progress. Realizing this, I commenced the treatment with much larger injections than he had used, and of a double-strength solution which was especially made by Messrs. Fairchild Brothers and Foster. Whether it was coincidental or not, it is interesting to note that no new nodules were observed from the time the patient received full dosage of trypsin to the time of my second operation, nor did those already present materially increase in size.

On November 27th (the twenty-fourth day after the radical operation) the local, dietetic, and hygienic regulations recommended by Dr. Beard were instituted. On November 28th daily injections of trypsin were begun. Fifteen minims of the double strength were injected into the deeper subcutaneous tissues over the buttocks. This dosage was increased to 20 minims and kept at that limit, with the exception of one injection of 25 minims. On December 24th (the twenty-eighth day of trypsin treatment) injections of amylopsin (20 minims) were begun. For the next twenty-eight days trypsin and amylopsin were injected alternately.

Operation 3.—On January 22nd, 1907, assisted by Dr. E. M. Foote, I removed the enlarged nodules and secondary deposits in the skin, to which I have referred. These were immediately placed in jars, which were sealed and sent by special messenger to different pathologists of standing, some of whom were told that x ray and trypsin had been used, while to others was given no such information. Their reports are appended.

The wounds healed promptly by primary union. The trypsin treatment was temporarily suspended on account

of this operation, but has been resumed, with certain modifications.

Before giving the pathological reports concerning the tumour mass and the metastatic growths subsequently removed, I think it but just to say a word concerning the report given to Dr. Morton by Dr. Brooks, pathologist to the New York Post-Graduate Medical School and Hospital. Dr. Morton, who was present at the operation of November 3rd, 1906, asked the privilege of taking a small section of the tumour mass for study. This courtesy was granted, and he himself cut from the tumour a piece from near the nipple. This, it would appear, was given to Dr. Brooks for microscopic study, and upon his report, and upon this alone, Dr. Morton and others have based their conclusions as to the value of trypsin "for the cure of cancer" in this case. So sanguine did Dr. Morton seem to be that he sent microscopic sections from the case to Europe for confirmation of his claims (according to Dr. Saleeby, *Harper's Weekly*, January 19th, 1907). Attaching so much importance to the microscopic findings from so small a section taken from the centre of the tumour, is manifestly unfair to Dr. Brooks, for, as we all know, the entire periphery of a tumour should be studied when it is wished to determine whether the malignant process is still active. The opening sentence of Dr. Brooks's report says that by far the greater portion of the specimen was composed of extremely dense fibrous connective tissue, "strongly resembling the fibrous connective tissue change noted in breast tumours subjected to x ray." This connective tissue, he continues, encroached upon the carcinomatous (epithelial) elements, which were scantily present and which were undergoing necrosis. Dr. Brooks says:

The great density of the tissue throughout and the decided degenerative changes in the epithelial cells gave the impression that atrophy of the carcinoma elements had occurred, and been followed by great contraction and condensation of the fibrous connective tissue stroma.

This change, as is well known, and as Dr. Brooks himself suggests, is not at all incompatible with what occurs in scirrhus cancer which has been subjected to x-ray treatment. Inasmuch as the section which he examined was but a fragment of the tumour, and the findings nothing more than could be accounted for by the use of the x ray, and since the portion examined was not taken from the periphery of the tumour, where proliferation of the malignant process should certainly be looked for, the report carries absolutely none of the weight which Dr. Morton and others have read into it. Dr. Morton says further:

Dr. Brooks assures me that, had the process outlined in his report continued, the result would have been such marked condensation of the fibrous connective tissue as to have made it very difficult to determine the carcinomatous nature of the growth.

The fact that this "process" did not continue, as will be shown hereafter, still further nullifies such hasty pathological conclusions. Dr. Morton, however, with clairvoyant vision, gives a further "reading" in these words:

In fact, the tumour at the time of operation was progressing to a point where its pathological nature would be considered simply as scar tissue. The finality of this process would have been a carcinomatous breast (involving inclusively its skin envelope) which had entirely disappeared—which had become, in short, *absolutely cured*.

(The italics are my own.)

The pathological reports which follow are quoted verbatim and in full.

REPORTS ON TUMOUR MASS REMOVED NOVEMBER 3RD, 1906.

1. Dr. F. B. Mallory, Associate Professor of Pathology, Harvard Medical School:

Your sections show a typical, rather rapidly-growing carcinoma of the breast. It contains a good deal of fibrous tissue—that is, it is of the scirrhus type—but occasional mitotic figures are present. The deeper parts where the tumour is invading muscle and fat tissue show nothing unusual. In other parts of the tumour, however, nearer the skin surface, there are (a) extensive areas of necrosis involving tumour cells and stroma; (b) areas where the stroma of connective tissue is very abundant and the tumour cells very few in number; (c) rather extensive areas in which the tumour cells present marked evidence of degeneration. The epithelial cells are large, and have large, round, oval, or often lobulated nuclei. Still other cells are frequently found in which many nuclei are present, formed by direct division. This process is analogous to that which occurs in the epithelial cells lining the pharynx in the early stages of diphtheria, also in the

skin after repeated freezings. These three degenerative processes would indicate some destructive process, but whether they are due to the x rays or to trypsin I am unable to say. I should favour the former.

2. Dr. F. S. Mandelbaum, Pathologist to Mount Sinai Hospital:

I have made sections from four different parts of the breast tumour that you sent me. In each of these I find fibro-carcinoma present. There are a good many places where the tumour cells are degenerated and stain very poorly, and it is natural to assume that in such places the process is quiescent, probably due to the various methods of treatment that have been employed. But in other situations, notably at the periphery, many nests of carcinoma cells are seen growing quite actively and infiltrating between the muscle fibres. In such situations quite a number of mitotic cells are seen, showing beyond question that the tumour growth is still active. The tumour cells in these places show no degenerative changes, and stain in the usual manner.

3. Dr. Martha Wollstein, Pathologist to the New York Skin and Cancer Hospital, and Fellow of the Rockefeller Institute:

The specimen as a whole takes the stains badly, and this prevents a positive opinion as to the condition of the individual cells. Many of the cells are in good condition, however, especially at the periphery, where columns of them are extending into the lymph spaces. There is marked inflammatory reaction in some places; in others the alveolar contents have disappeared, but whether this occurred before or after the removal of the breast cannot be determined. The stroma is quite dense in some places, but on the whole it has the typical appearance of a scirrhus carcinoma.

REPORTS ON METASTATIC GROWTHS REMOVED JANUARY 22ND, 1907.

1. Dr. James Ewing, Professor of Pathology, Cornell University Medical College:

Material received consisted of one piece of skin and a nodule $2 \times 1 \times 1$ cm. apparently of subcutaneous tissue. Both specimens contain a diffuse growth of highly malignant tubular carcinoma. The large nodule consists of fat tissue, connective tissue, and one small lymph nodule, all of which are thickly infiltrated by the tumour. In the lymph nodule the carcinomatous growth is diffuse and little of the node remains. The pericapsular lymphatics and several large veins are plugged by solid masses of tumour cells. A considerable increase of fibrous connective tissue accompanies the tumour process. In the skin there are several minute and one larger metastatic nodule, and in some foci only a few isolated tumour cells appear. In these metastases the tumour cells first appear in small isolated groups which increase in size, until, as in the largest nodules, the cords are of considerable thickness, or the growth is almost diffuse. In all portions examined the cells retain the characters of large polygonal epithelia. The characters of the cells, their arrangement, invasion of blood vessels, and numerous mitotic figures, indicate active growth and a high grade of malignancy. A moderate degree of hydropic and fatty degeneration is present in many of the cells of the cutaneous nodules, but in the main subcutaneous tumour and in the lymph node, degenerative changes are very slight or entirely missing. Mitotic figures are abundant in all parts of the tumour. In this case, therefore, there is no indication that the trypsin treatment has exerted any definite influence on the tumour cells. The degenerative changes seen in some portions are commonly present in some portions of all carcinomata.

2. Dr. Wollstein:

Skin: epidermis normal. In the subcutaneous tissue there are some smaller and larger columns of epithelial cells which have penetrated the lymph spaces, and evidently show spreading of the carcinomatous process from below. *Lymph nodes* show marked metastases of carcinoma. Only a small amount of adenoid tissue remains.

3. Dr. Mandelbaum:

I have examined the two specimens. The one, supposed to be a gland from the neck, does not show any glandular tissue, but it is entirely infiltrated by carcinoma cells, which are active and do not show any degenerative changes whatever. I look upon this as a metastatic nodule in the superficial muscles. The other specimen shows carcinoma cells, rapidly growing, in the upper layers of the corium, and also extending downwards into the deeper layers of the skin and subcutaneous fat. These cells, likewise, show no evidence of degeneration.

4. Dr. F. M. Jeffries, Director of the Pathological Laboratory of the New York Polyclinic Medical School:

To begin with, cancer invades all the tissues received—the skin from cicatrix of previous operation and the tissue from present operation. It is of the *carcinoma molle* type, and, by the abundant karyokinesis, appears to be in a very active state. In fact, it exhibits most extreme malignant characteristics, even the extreme of invading the arteries and veins where

emboli appear to have lodged; and in two such instances I find in my sections that these same emboli have penetrated the endothelium, and dissected the muscular coats of the vessels.

I am wholly unable to appreciate any effects which might be attributed to the treatments to which you say the growth has been submitted, except in the more superficial alveoli of the portion of the skin from old scar, where I recognize the effect of the x-ray treatment in a contraction of the alveoli, together with a general atrophic condition, affecting all superficial structures save epidermis, which appears to be entirely normal. The groups of cancer cells in this locality appear to have become markedly shrunken; they fail to react properly to the nuclear and protoplasmic stains, and there is consequently very little differentiation. It exhibits practically no karyokinesis.

The foregoing history, embracing the pathological reports, will, I believe, convince all who may be interested that in the study of cancer, more perhaps than in any other field of research to-day, is there need for "suspended judgement," for "the cultivation of that enthusiasm for truth, that fanaticism of veracity," which should be brought to bear on all questions involving human life.

Whether we accept or reject the theory upon which it is based, let the "trypsin treatment" receive the scientific test; while it is being tested, let there be suspended judgement. When the evidence is correlated and the final verdict rendered, if favourable, let it be accepted; if adverse—then on to the next.

INFLUENZA COMMENCING WITH SUDDEN UNCONSCIOUSNESS, AND EXCESSIVE DYSPNOEA.

By WILFRED HARRIS, M.D., F.R.C.P.,

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THE following account of an unusual case will, I think, be both interesting and instructive from the point of view of diagnosis, and on account of the recent renewal of severity of the scourge of influenza.

A. G., a plasterer, aged 38, was admitted into St. Mary's Hospital in the morning of December 6th in a semi-conscious condition. From the account given by his mates who brought him, and from what he was afterwards able to remember himself, it appears that he was in his usual health when he went to work that morning, and while he was at work he commenced to feel giddy. This lasted for perhaps ten minutes, when he fell down suddenly unconscious. He was slightly convulsed at first, and his fellow-workmen left him on the ground, thinking that he would soon come round. He recovered sufficiently in about twenty minutes to be able to speak, and he was then brought up in a cab to the hospital. He says now that at the time he felt able to walk up, but judging from his condition on admission, that is more than doubtful.

State on Admission.—After being put to bed, he was found to be lying in a semi-conscious condition, just able to answer questions, though very slowly. His temperature was 101° F., the pulse 88, and his respirations 76 per minute and slightly stertorous. The pupils were contracted and equal, and reacted to light. There were no signs of any weakness of the limbs, but his legs seemed somewhat rigid, and the knee-jerks were brisk; the plantar reflexes were flexor, the urine normal, tongue coated, and bowels constipated. He complained of pain in his head, and there was also occasional coughing, which increased the headache, as when he coughed he put his hand across his forehead. On the evening of admission the temperature ran up to 102.4° F., though the pulse fell to 72 and the respirations to 24 per minute. At 2 o'clock the next afternoon, when I saw him for the first time, the temperature had fallen to 99.6° F., but the respirations were again very frequent—60 per minute, while the pulse-rate was only 56, strong, and of full volume. He was now fully conscious, but was still slow in answering questions. He complained of severe frontal headache and of pain in his back in the lumbar region, and he was able to tell us that he had had two similar attacks, one four years and the other fifteen years previously. Examination of the chest showed him to be perspiring freely; both sides of the chest moved well, but on percussion the note over the whole of the right front was distinctly high-pitched, and there were numerous sticky râles to be heard over the right upper lobe. The arteries were somewhat thick-walled and hard, but the urine was of good specific gravity, and contained no albumen. The optic discs and retinae were normal, and examination of the nervous system showed no abnormal physical signs.

The several diagnoses that were at once suggested as possibilities were—epilepsy, cerebral haemorrhage or thrombosis, cerebral tumour, uraemia, and pneumonia. Epilepsy seemed possible on account of the sudden onset

of unconsciousness, followed by slight convulsion, and this diagnosis was rendered more probable by the history of two similar attacks previously. However, the dyspnoea, the râles in the chest, and the pyrexia excluded this diagnosis. Apoplexy and cerebral tumour, too, were similarly excluded. Uraemia at first seemed possible, because of the definite arterio-sclerosis present, and the dyspnoea might have been the air-hunger of uraemia, while pyrexia is not uncommon with uraemic convulsions. The breath did not suggest uraemia, though its odour was heavy, and the high specific gravity of the urine, with absence of albumen, excluded this diagnosis too. Pneumonia seemed, perhaps, the most likely of all the above-mentioned possibilities, accounting for the pyrexia, dyspnoea, high-pitched percussion note, and the râles. The dyspnoea was, however, excessive for pneumonia, and the pulse-rate disproportionately slow. Although it is well known that in pneumonia the pulse-respiration ratio is altered from the normal 1.4½ to 1:2 or even less, I have never known such a disproportionate ratio as was present in this case of 88:76 on admission, and when I first saw him on the next day the pulse-rate was even slower than the respirations, being 56:60. Such an excessive frequency of the respirations is met with only in asthma, hysterical dyspnoea, or in air-hunger of uraemia, or acid intoxications, as in diabetes or salicylate poisoning. Moreover, although lobar pneumonia may be ushered in with a convulsion in a young child, especially one with a family neuropathic tendency, I do not know of such a commencement of the disease in an adult.

Neither of these possible diagnoses, therefore, seemed to fit the case, and one sign seemed to me particularly suggestive of influenza—namely, the slow pulse, only 56 when I first saw him, though the temperature was then 99.6° F. Looking at the case from this point of view, the other symptoms—the frontal headache and lumbar pain, pyrexia, sticky râles, and cough—all clearly pointed to this disease. Only the curious mode of onset with sudden unconsciousness remained to be explained, but, being familiar with the literature of the disease, particularly of the epidemic of the early nineties, I was aware of several cases having been recorded which started suddenly in this way. The after-course of my case proved this diagnosis to be correct. He was put on an effervescent quinine mixture every four hours; the frontal headache and the backache improved much on the third day, and his temperature, which reached its highest point of 102.8° F. on the third night, fell to normal during the early hours of the fifth day, and he rapidly became convalescent. The high-pitched percussion note and the râles over the right front of the chest disappeared on the third day, and no further signs of pneumonia developed, but that he had an abortive form of pneumonia, of influenzal origin, I have no doubt. We learnt later that the two previous seizures with sudden unconsciousness that he had had, four years and fifteen years ago, ushered in precisely similar attacks of influenza to this illness, being followed on each occasion by fever, severe headache, pains, and bronchitis which was afterwards recognized to be due to influenza. It will be noted that his first attack occurred in 1891, in the comparatively early days of the last invasion of this country with influenza.

TWO CASES OF CYSTINE CALCULI.

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CYSTINE calculi are of such rare occurrence that a brief account of two cases—one vesical, the other renal—which were recently under my care at the same time in the Manchester Royal Infirmary, may prove of interest.

In a series of 140 cases of vesical calculi which I have removed by operation, Case 1, recorded below, is the only instance met with where the calculus has consisted of cystine.

In the BRITISH MEDICAL JOURNAL of July 13th, 1878, I recorded details of 4 cases of vesical calculi consisting of cystine, which were operated upon by my father (who was surgeon to the Manchester Royal Infirmary, and Professor of Surgery at Owens College). Of these, 2 occurred in private and 2 in hospital practice.

The last case of the series, which is fully recorded in