SOCIETIES' PROCEEDINGS

ROYAL SOCIETY OF MEDICINE—SECTION OF LARYNGOLOGY.

President—Mr H. S. BARWELL, F.R.C.S.

March, 2, 1928.

Sinusitis in the Etiology of Mental Disorder.—Mr T. C. GRAVES and Dr F. A. PICKWORTH. Paper published in the *Journal of Laryngology and Otology*, vol. xliii., August 1928, p. 545.

DISCUSSION.

Mr W. STIRK ADAMS said he had been associated with the authors in this work for the past eighteen months, and had examined 480 patients selected by Mr Graves and his staff. In 329 he had found evidence of sepsis in the nose. He included in this group all patients who had pus, crusts, excessive mucus, or mucous polypi in their nasal passages, or a granular pharyngitis, and also those who, on transillumination, showed dimming of the antra.

In 177 patients the Watson-Williams method of examination of sphenoid, posterior ethmoid, and antra was carried out, and in 161 of these there was evidence of infection. The sphenoid was affected either alone, or with other sinuses, in 78 patients, the posterior ethmoid in 106, the antra in 120. These figures were based on clinical findings alone—pus in the syringe, a thickened velvety mucosa, or, in a few cases, polypi withdrawn upon the antral cannula. A considerable number of the washings had been examined by culture, but the results of these had not been included.

In relation to the chronicity of the infection in these patients, the presence of changes in the bony structure of the nasal walls of the sphenoid and ethmoid had attracted his attention. Osteosclerosis was noted in fifty-one of the patients, and in forty-two he had failed to enter one or more posterior sinuses, the number of individual sinus failures being sixty-three. He considered that osteosclerosis was more frequently met with than osteoporosis.

Mr T. B. LAYTON said there was no branch of surgery to which a more sceptical approach was needed than that of sinusitis. He would not have the reader of the paper and those who had brought their data before them think he intended any disparagement in what he had to say, and he hoped they would continue in their work; but an agnostic standpoint was justified on the subject. He would have it understood that he criticised his own technique just as severely as he did that of others.

The first point to which he would draw attention was that in none of these cases had the diagnosis been made by the fundamental routine way of finding pus within the nose, that is by thoroughly cleansing the nose, until

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all had been removed, and of then waiting to see if it returned. In each of these cases it was made by less sure methods, by the use of the cannula, by the cultivation of washings, and by transillumination.

Secondly, he wished to point out the remarkable bacteriological results which had been obtained. No single organism had been found, but a multiplicity, and a type not usually associated with suppurative pathological conditions; particularly was it noticeable that hæmolytic streptococci were absent from all these cases. He felt they were justified in saying that these were not typical cases of suppurative sinusitis. Some Members would remember that last summer (1927) he had read a paper* in support of the view that there was a distinct type of sinusitis entirely separate from the suppurative, and that further investigation was necessary to discover whether this was the case. In the meantime he wondered whether the cases described to-day might come under this category.

The great difficulty, however, was to distinguish between a local inflammation inside the cavity of the sinuses and a general inflammation of the whole mucosa of the nose, of which the lining of the cavities was a part. In these circumstances the condition should be classed as a rhinitis rather than a sinusitis. External dirt would often cause such a state. When working in a poor and overcrowded district one saw it frequently in children, and he wondered whether the condition found in the nose of these patients was the result of external dirt. It might be remarked that every case was in a dirty condition when admitted, apparently with the exception of Case 4, in which there was a potent source of superficial infection in the form of carious teeth. If such was the explanation of these cases, then the improvement within the nose might have resulted from the general improvement of the patient.

He wished particularly to speak of the "Watson-Williams technique" for investigating sinuses. Nine years ago Dr Watson-Williams had brought his method before the Section,† and he (the speaker) made certain criticisms of it. Since that time he had watched Dr Watson-Williams use it at Bristol and at Manchester, and Mr Eric Watson-Williams had demonstrated it in his (Mr Layton's) theatre. Nine years' work had not given him any reason to reverse his criticisms. He had then said that "he did not doubt Dr Watson-Williams' rhinological technique, but he did doubt his bacteriological technique." On this subject of bacteriological technique he would point out that the general surgeon with his so-called aseptic technique, was far behind the bacteriologist in his work. To realise this one had but to consider the number of times material sent to the laboratory for investigation turned out to be useless, because it had become contaminated with some adventitious organism. Inside the nose one was in a greater difficulty than on the outside of the body. In exploring the sphenoidal sinus by the Watson-Williams technique, a blunt trocar within a cannula was passed into the nose, touching the septum or middle turbinal, and was then driven through the anterior wall of the cavity; the trocar was then withdrawn through the cannula, saline was injected and sucked back again. It was impossible to say whether the organisms so grown came from the interior of the sphenoidal

* *Proceedings*, 1927 (Sect. Laryn.), xx. 81.

† *Proceedings*, 1919 (Sect. Laryn.), xii. 226, 227.

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sinus, from the mucous membrane covering its anterior surface, or from some other part of the nose. So far as the posterior ethmoidal cells were concerned, he now suspected that even the rhinological technique of this method was at fault. In many cases when the cannula was passed from underneath through the posterior end of the middle turbinal, its point lay not in an ethmoidal cell but in the superior meatus of the nose. If, in such a case, mucopus was sucked up, the diagnosis of an inflammation of the cells was made whereas it was really a localised cellulitis.

With regard to the specimens shown, he was not prepared to give an opinion on the condition of a mucous membrane when inspected through a piece of glass; it was often difficult in the post-mortem room to decide whether the lining of the sphenoidal sinus was normal or inflamed, and he was not prepared to accept all the descriptions given. He could be more dogmatic with regard to one specimen, in which it was suggested that the osseous tissue round the small sphenoidal sinus showed evidence of osteitis. Considering the variations in the size of the sphenoidal sinus and in the density of the osseous tissue of the body of the sphenoid, he did not think there was anything there that might not be found in a normal sphenoid in which there was no suspicion of inflammation.

Dr PATRICK WATSON-WILLIAMS said that at the meeting of this Section in May 1916, he had introduced the subject of "The Influence of Nasal Sinus Infection upon the Moral and Legal Responsibility of the Patient"; and he and other Members had then described a number of cases. Impressed with the importance of this subject he had again dealt with it nine years later in his Semon Lecture. Hence he had been gratified to find that, in the meanwhile, similar work had been carried on at Birmingham Mental Hospital by Mr Graves and his staff and by Dr Pickworth; also at Trenton, New Jersey, by Dr Henry Cotton and by others. Mr Stirk Adams had undertaken the investigation of cases for Mr Graves from the laryngologist's point of view. One of the diagnostic methods used by Mr Adams was the suction process associated with the speaker's name.

He hoped Mr Kisch would elaborate the mental aspects of his case recently shown at a meeting of the Section, in which the sphenoidal sinus infection was proved by the method which Mr Layton deprecated. That patient, as was so often the case, recovered perfectly, almost immediately after the sphenoidal sinus had been drained.

The profession was learning much from what was being done in mental hospitals in the advanced study of mental disorder; might one not hope for similarly beneficial therapy in relation to some forms of crime? This might at times take the place of purely punitive measures, which, indeed, our grandfathers thought right even in cases of lunacy.

Specimens in which the stomach was also involved had been shown by Dr Pickworth, and one showed that apparently infection was present in the blood stream, while involvement of the hypothalamus probably had much to do with some of the symptoms.

He regretted that it was impossible to occupy time in replying to Mr Layton as to the way of using the cannula and syringe in diagnosis; he could only ask Mr Layton to read more carefully the directions for the technique which the speaker had described and published on previous

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occasions (e.g. *Journ. of Laryng., Otol. and Rhin.*, March 1912; *ibid.*, October 1921; *ibid.*, December 1925).

Dr J. R. LORD said he had tried, without much success, to get ear and throat specialists to take an interest in psychiatry, and he hoped the outcome of this meeting would be a move in that direction. As had been said, the Birmingham Mental Hospitals had provided a fine example of the value in mental cases of a thorough examination for the presence of focal sepsis and its prompt removal. For long, psychiatrists had been trying to separate out from the great mass of undefined mental disturbances, types or syndromes approaching disease entities having a definite causation, pathology, and prognosis, symptomatology and lines of treatment. There had been separated out certain prominent types to be met with every day—manic depressive psychosis, dementia præcox, general paralysis, arterio-sclerotic psychosis, involution melancholia, senile decay, etc. There still remained, however, a large number of undefined cases whose symptoms revolved round these defined types. They presented an unexplored territory, but he was pleased to say that, with the co-operation of other branches of medicine, there was a prospect of being able in the near future to separate out another definite psychosis. He did not know what it would be called, but he would strongly object to it being termed "septic psychosis."

On visiting a mental hospital one could not fail to be impressed, even on only casual examination, by the fact that the physical condition of chronic cases suggested involvement of the basal ganglia. In the early cases, on the other hand, abnormality in feeling-tone was usually the primary condition. It was an old idea that all psychoses had a prodromal or early affective disturbance, and modern biological conceptions in psychiatry supported that view. It was now generally recognised that the infragranular layers of the cortex, the thalamo-striate level, and the machinery of the vegetative nervous system, were associated with the dynamics of mind, *i.e.*, instincts and feeling-tone. Thus there were these two parallel facts: that the chronic case showed physically definite implication or degeneration of basal structures, while in the recent and acute cases these structures were apparently also involved in that affective onset he had just described. The clinico-pathological aspects of many cases of both defined and undefined mental disorder suggested a septic or toxic causation. There could be no doubt from this point of view, that there were two groups of cases: the acute infection case, in which there was a mass invasion of anatomical areas of the brain through arterial or lymphatic channels, and another type in which a virus or toxin probably elaborated in the intestines, invaded functional levels of the nervous system by a selective action. His experience gave strong support to the hypothesis, which had been advanced at this meeting, of the importance of sepsis in the etiology of mental disorders. Medical officers had brought before him mental patients for discharge with whom the speaker was not satisfied. Their complete recovery seemed to be delayed for some reason or other, and it had been found that a septic focus was standing in the way. He had not yet met with such a case in which effective eradication of such foci had not resulted in complete recovery of the patient. That was a strong clinical support of Mr Graves' contentions. One had to be alive to this causation in the so-called recurrent mania, commonly a recurrent

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hallucinatory excitement. The history was often first a throat or stomach condition, possibly ulcerative. Then in two or three years' time an attack of wild excitement with hallucinations and considerable confusion. This cleared up, but two or three years later the same mental symptoms recurred. One patient had had six such attacks. One such attack he observed was associated with congestion and malar twitching of one side of the face, a narrowing of the orbital fissure, and excess lacrymation on that side. The twitching of the lower eyelid was from side to side—horizontal and not vertical.

It must not be supposed that treating sepsis would cure all cases of mental disease; it would not. But what was going to happen by this new line of research was to bring within the range of practical psychiatry another definite group of that still very considerable psychiatric material which was yet undefined and treated on empirical lines only. Further, a fresh light was also going to be thrown on the causation of the defined psychoses in many cases, and what was still more important, a new implement of prophylaxis forged.

Dr WILLIAM HUNTER said that the part played by the sinuses in connection with mental disorder was very important to the profession; actual details might well be left to laryngologists to work out in individual cases. The factor of sepsis had to be faced, just as that of syphilis and its large entry into diseased states had been faced. With regard to the name for the psychotic effects produced by sepsis, he must leave that to his psychiatrist friends, though he was personally inclined to give the term "septic" to a state in which sepsis was proved to be a causal factor. Psychiatry was being brought into closer touch with general medicine; he himself found that studies with regard to sepsis had given him a keen interest in diseases of the mind.

Mr A. D. SHARP said he hoped that as a result of the papers just read, greater attention would be paid to the relationship of sinus suppuration to mental disorder. A case seemed to have been made out for a rhinologist to be attached officially to every mental institution. A patient ought not to be certified as insane until a thorough investigation of his sinuses had been made.

He might mention the case of a married woman, a devoted mother and wife, always healthy and cheerful. She suddenly manifested symptoms suggesting an oncoming mental disorder, *i.e.*, morose, irritable, detached from her family and suspicious of everybody. This became so bad that it was feared she might do bodily harm to the children. As she had in the early stage complained of headache, he suggested that the nose might be examined. Pus was detected high up in the nasopharynx. She was brought to a nursing home and he found pus in the left sphenoidal sinus, which he drained in the usual way. In a week she was greatly improved, and on the tenth day asked about her home, and desired to have her children brought to her. Improvement was uninterrupted, and in six weeks she was well, mentally and physically. This occurred a few years ago; there has been no relapse.

Dr JOBSON HORNE said that he agreed generally with all that Mr Layton had said. He considered that the case for nasal sinusitis as a

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cause of mental disorder had been very much overstated in the papers before them. The "bacteriological findings" mentioned by name a baker's dozen of different micro-organisms as responsible. Years ago he had investigated the bacteria in the healthy nose and sinuses; the organisms found were too numerous to be christened, and were not pathogenic. He also agreed with Mr Layton that the technique employed was the weak point; any number of organisms could be obtained by that method, and to base nasal sepsis on such findings was not warrantable. If the Section were to accept the suggestion that nasal sepsis was an etiological factor in 70 or 80, or possibly 90 per cent. of cases in mental hospitals, then rhinology would be brought into ridicule.

Mr E. D. D. DAVIS, referring to the 329 cases mentioned, asked how many patients there were in the asylum referred to.

Dr PICKWORTH (in reply) said that a very careful and controlled technique was being employed for the investigation of the bacteriology of the sinuses, but as the controls were occasionally not sterile it was not yet advisable to publish it or to make important deductions. The exact type of organism, perhaps, was not so very important after all; especially if we follow Lowndes Yates' view that only a damaged mucous membrane, as in chronic sinusitis, allows the permeation of viruses, such as lethargic encephalitis. The specimen "G. S." referred to by Mr Layton as not showing osteitis, was certainly permeated by organisms easily seen in a microscopic section which had already been demonstrated and illustrated (Fig. 5, p. 561).

Mr T. C. GRAVES (in reply) pointed out that the first case was not investigated by the Watson-Williams method; it was a clear-cut case of chronic suppurative sinusitis; pus and polypi were found in both antra.

He had been much interested in the multiplicity of the organisms found in these cases, which he believed to be the cause of the mischief; the ravages of one organism probably made way for and facilitated the destructive work of another.

The suggestion that dirt could cause sinusitis after the mental disorder had been established seemed to be negatived by the histories which, in some cases, dated back to before puberty.

The sequence of events in certain cases of sinusitis and mental disorder which had been treated was: Sore throats or infectious disease, such as scarlet fever, with subsequent chronic nasal and/or aural sepsis, later gastro-intestinal disease, then an attack of mental confusion which might temporarily clear, but which would recur and necessitate certification.

Three of the cases had not had surgical interference until nearly six months after admission, and they did not improve until surgery had been carried out. In the meantime other lines of treatment had been followed which had given good results in other cases.

He was sure these cases would not have improved as much as they did unless the sinuses had been treated; they might have stabilised at a certain level, but they would not have been able to resume family life.

With reference to the request for statistics, he preferred to give them on the basis of the annual admissions. In 1927 of 300 cases admitted to the mental hospital, 50 per cent. were considered on admission to have

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sufficient disease of the nose, ear, or throat to require examination by Mr Adams, to whom they were sent, and he agreed with the diagnosis. In half these cases, *i.e.*, 25 per cent. of the admissions, the Watson-Williams suction syringe method was carried out, and it gave evidence of sinus disease.

He wished to thank his colleagues on the visiting and resident staffs of the hospital for their observations on and treatment of the cases he had submitted.

Safety-pin, open, point upwards (which had been in the Larynx or Trachea for 1½ years) removed from the Right Bronchus of a Child of 2 years 7 months—H. Bell Tawse, F.R.C.S.—Female, aged 2 years 7 months. When one year old, whilst apparently quite well, had a sudden attack of coughing and choking, accompanied by considerable dyspnœa sufficiently serious to make the mother rush to the doctor; diagnosis, croup.

Hoarseness and cough persisting for twelve months, despite treatment at various places, suggested whooping-cough.

At two she developed diphtheria, and dyspnœa necessitated tracheotomy.

First seen by exhibitor at the age of 2 years 4 months, when admitted to hospital with cough and dyspnœa, severe enough to cause cyanosis at times. Position of operation scar seemed to point to a very high tracheotomy, and led to the provisional diagnosis of obstruction from granulations in the larynx.

X-ray photograph showed open safety-pin, point up, at level of fifth cervical vertebra, presumably at or just below the cricoid. Child struggled during administration of anæsthetic; breathing ceased: tracheotomy wound opened up and tube inserted. In a later skiagram the safety-pin had dropped to the level of the fourth dorsal vertebra, probably at the bifurcation of the trachea.

Under general anæsthesia, pin found in upper part of right bronchus. Point seized, tube pushed down over it, pin and tube removed together.

Pin, originally a gilt one, very corroded, and when laid on a table the pointed branch became separated from the spring.

Comments.—(*a*) It is not always advisable to attempt closure of an open safety-pin as the initial step towards removal? In this case the pin branch would have separated, leaving two springless foreign bodies —one pointed—to deal with. (*b*) Do chronic hoarseness and spasmodic cough suggest the necessity for X-ray examination in young children?

Safety-pin, open, point upwards, in Œsophagus of Girl of 17, removed by Unintentional Endogastric Version—H. Bell Tawse, F.R.C.S.—The safety-pin had a widespread and a strong spring.

(*a*) The point was disengaged from the œsophageal wall and the

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tube passed down over it. Repeated attempts to remove pin and tube together failed, the keeper being invariably caught.

(*b*) The strength of the spring foiled attempts at closure.

(*c*) Version did not succeed.

(*d*) It was decided to pass the pin into the stomach for removal by gastrotomy. As the forceps released the pin in the stomach, it turned over, the spring was seized, pulled into the tube, which was drawn out with the safety-pin inside it.

Hosiery Needle with Wool in Eye removed from Larynx of Woman of 25, by the Indirect Method under Local Anæsthesia — H. BELL TAWSE, F.R.C.S. — The blunt end was embedded in the right arytænoid, the point in the epiglottis. My intention was to seize the pin near the blunt end, release it from the arytænoid, push the pointed end through the epiglottis, grasp the point and withdraw the whole needle through that structure. Hosiery needles are very brittle. This one broke in two, and the fragments were removed separately.

Horse-bean blocking Right Main Bronchus of Child, 7 Years. In Situ over Twenty-four Hours. Complete Atelectasis Right Lung — H. BELL TAWSE, F.R.C.S.—Patient in considerable distress. Some difficulties experienced.

(1) Swollen œdematous mucosa completely hid the foreign body.

(2) Application of various forceps unsuccessful—all either failed to grasp, or slipped off on tightening.

(3) Suction by cotton-wool and gauze plug—with the idea that sudden withdrawal might create a vacuum, as happens when the piston of a syringe is rapidly pulled up. This failed.

(4) Blunt hook forced past the bean—became inextricably fixed—probably in mouth of small bronchus.

(5) Low tracheotomy—shaft of hook cut through. Hook ultimately disengaged, but did not move the bean.

(6) Forceps again applied through tracheotomy wound, but without result.

(7) Upper end of bean nipped off bit by bit. Rest removed *en masse* by fenestrated forceps.

Comments.—(*a*) The employment of the curved hook created such complications and delay as to make one hesitate to use it again in a similar case. Possibly, if the curve were limited to a right angle it would less likely become anchored, and would be more easily disengaged. (*b*) Removal of the bean by *morcellement* cannot be advocated, but in this case it seemed the lesser of two evils.

Mr HERBERT TILLEY said that in young children chronic hoarseness and spasmodic cough which did not quickly respond to ordinary measures,

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suggested the need for radiography. In such cases, should X-rays not give evidence of a foreign body, the bronchoscope should then be used in case there might be an object not opaque to the rays. He had shown before the Section the case of a child who had an open paper-fastener in the left bronchus and it had been there twenty-one months. There had been cough and bronchitic symptoms and the tonsils had been enucleated to relieve the bronchitis, though this was limited to the left lung. When a good radiogram was taken the foreign body was easy to see, and he (the speaker) removed it.

Mr W. M. MOLLISON said that, illustrating the difficulty sometimes experienced, he recently had in hospital an infant, aged 1 year, who had been under a physician for about a month, and had received active treatment for bronchitis for a fortnight, but with no good result. As so much laryngeal noise was made by the patient and disturbed the others in the ward, he (the speaker) was asked for an opinion. He found nothing wrong with the larynx, and suggested a skiagram. This showed a collar-stud just below the cricoid; it had been there six months. An ordinary small tube was passed into the œsophagus, but it was impossible to remove the collar-stud, therefore he had a small Mosher's tube made; even then it was difficult to remove the stud, as it had button-holed itself between the œsophagus and the trachea. However, he managed to do so, but opened the fistula between the trachea and the œsophagus, and the child died.

Mr H. S. BARWELL (President) said he had had a case similar to Mr Mollison's, but it occurred long ago when the direct method was first introduced. A metal collar-stud was fixed like an anchor in the upper aperture of the œsophagus under the prominence of the cricoid cartilage; he had failed to remove it and the infant had died. As it had been *in extremis* when brought to hospital, no external operation could be attempted.

Sir JAMES DUNDAS-GRANT said that a hook had been made, after the fashion of Lister's ear-hook, and like certain bottle-cork extractors which were passed on the flat beyond the cork and then rotated through a quarter turn so as to catch it. He had found this hook very useful in "orienting" and loosening the large portion of an inferior denture (shown on the screen) which he had removed by means of D. R. Paterson's forceps furnished with Irwin Moore's blades. It was at the level of the clavicle.

Tuberculosis of the Ventricle of the Larynx, treated by Partial Excision of the Ventricular Band—Sir JAMES DUNDAS-GRANT, K.B.E., M.D.—Male, of middle age, with tuberculosis and extreme hoarseness, was found to have a rounded, fleshy outgrowth protruding from the anterior two-thirds of the right ventricle. This was punctured with the galvano-cautery on several occasions with some benefit. In August of last year I removed with punch-forceps a portion of the middle of the ventricular band, since which the

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hoarseness has diminished with great rapidity, the patient voluntarily stating that he can now sing.

I have made a notch in the ventricular band in several other cases in which there seemed to be a focus of tuberculous disease in the ventricle.

Mr H. E. BARWELL (President) said that these cases of tuberculosis inside the ventricle presented special difficulties for local treatment. In one case he had performed laryngofissure and removed the whole of the ventricular band, and the patient's general condition had improved considerably.

ABSTRACTS.

THE EAR.

The Present Position of Deafness and its Prevention. Dr CARY, Dallas, Texas. (*Surgery, Gynæcology, and Obstetrics*, June 1927.)

The writer regards the outlook as most promising and favours routine school examinations; also propaganda among the children and teachers. He analyses the cases recorded by Shambaugh—290—in the Chicago Public Schools for the Deaf (*Archiv. Oto-laryng.*, November 1925). Of these, 145 were acquired, and in 85 of them there was no history of middle-ear inflammation. The last figure he considers misleading and suggests that a serous otitis media, with serous labyrinthitis, actually took place, without perforation of the drum membrane.

He suggests that the pædiatrician should be trained in aural diagnosis in children, especially in infectious fevers.

Discussing this paper, Dr J. M. Waugh of Cleveland, Ohio, stated that one million people in the United States were hard of hearing, and 150,000 deaf and dumb. He mentioned the effect of deficiency in vitamine A in producing sinusitis in mice, and suggested its application to man. S. ADAMS.

The Arsenic Treatment of Deafness. E. WODAK. (*Laryngoscope*, Vol. xxxvii., No. 12.)

Over 300 cases have been treated with arsenic in the form of 5 mgrms. Natr. arsenic given during a meal, preferably in the evening. Each case is dosed according to its reaction and a cautious manner is recommended owing to the possibility of arsenic idiosyncrasy. If there are no bad effects, two doses are given and then three. If symptoms of indigestion or intestinal trouble develop the arsenic is stopped, and when the irritative phenomena have disappeared,

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