# SOCIAL SURVEYS.*

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I AM very grateful to the Committee of this Conference for giving me the opportunity to say a few words about the aims and methods of social surveys. I must, however, confess that I was somewhat astonished when I got the invitation, because everybody interested in this topic knows that the most eminent experts within this field are English. It would, therefore, seem unnecessary to ask a foreigner to read this paper, and after having heard the lectures of Dr. Lewis and Dr. Blacker I feel still more convinced that I shall not be able to add anything of importance to their excellent presentations.

The Committee have asked me to present some investigations of mine as a basis for a discussion of methods for ascertaining the amount of mental disability in a population and relating it to the social background. This investigation, which was performed some years ago in the Danish island of Bornholm, I should not like to compare with the great surveys of Dr. Lewis and Dr. Blacker, but as it does represent other methods it could be used for a discussion and comparison of methods.

Unfortunately these methodological questions usually seem rather uninteresting to those who have not taken active part in the practical work within this field. On the other hand, I must say that it is quite impossible to estimate the value of the results of a social survey when you don't know exactly which method has been used. Sociologists and clinicians are very much interested in the results of the surveys, but usually rather indifferent as to the methods used. The investigators themselves, on the other hand, often become so absorbed in the methodological questions that in some cases they apparently do not care if they get any results at all. In my report I shall try to strike a balance between these two tendencies.

I hope to be forgiven for making a few historical remarks. Research within our field has been made principally by medical statisticians and by geneticists. The first group are used to estimating the incidence of a disease or an abnormality by counting people dying from it, or coming to hospital for it, or getting some kind of pension for it, but in general they do not try to count people who are staying at home with their disease without trying to get it cured, or to have a pension for it. From some restricted sociological viewpoints these persons may be said to be without the social criteria of the disease, but from a biological viewpoint this is obviously false. It is quite natural then, that geneticists especially, who are interested in revealing every single case of the disease in a given population, have been obliged to find other methods of estimating the incidence of diseases in the general population.

* A paper read at the International Conference of Physicians, London, 11 September, 1947.

https://doi.org/10.1192/bjp.94.395.266 Published online by Cambridge University Press

In the early history of human genetics it was thought to be sufficient to study the families of the sick propositi, but soon it became obvious that an exact knowledge of the morbidity in the general population was necessary for the sake of comparison. About fifty years ago the first investigations of this kind were made by Jenny Koller in Switzerland and Jost in Germany, and a few years later they were followed by Otto Diem. Their principles of sampling were not very good, and their results consequently not very reliable. No greater advance in the field took place until in the late twenties Rüdin, Luxenburger and their pupils in Munich became interested in the problem and initiated a series of investigations. Luxenburger was concerned especially with the methodological questions. I think it fair to say that most of his principles were sound enough, but that often they were used in ways which gave quite unreliable results. The most severe objection to these works of the Munich School is that the samples were generally much too small. The confidence in the percentages computed by these authors often depended on not calculating the mean errors. On the other hand, these investigations were of importance in so far as it was possible to join the small samples to larger samples that gave sufficient numerical basis for determinations of the morbidity in the general population.

The principle of these methods is well known ; a number of propositi were chosen, as arbitrarily as possible, and then the incidences of different traits among their relatives were determined ; in all cases the incidences among parents and siblings, in other cases among the children and among the siblings of the parents, too. Afterwards the incidences were compared with the corresponding incidences among the relatives of abnormal propositi. This method of computing the " empirical genetical prognosis " (empirische Erbprognose) has given many valuable practical results. It was soon apparent that in many cases differences in social prognosis were very great. It was obvious, too, that here was a method which made it possible to get an impression of the social importance of many diseases. But still it was rather difficult to compare the results of these sampling methods with the results of the census investigations usually made by sociologists and psychiatrists. A great number of census investigations have been made during the last 25 years. Some of them, especially in Germany and Switzerland, aimed at ascertaining all cases of mental abnormality. Unfortunately the populations that had been chosen were not good samples. The Swiss populations were rather small, and with much inbreeding in them. Both these populations and the Bavarian populations investigated by the Munich School were heavily tainted with goitre and cretinism.

Eighteen years ago the Swiss psychiatrist Brugger made a wide investigation in Thuringia. In an area comprising 38,000 inhabitants he tried to count all cases of mental aberration. He found only 1·3 per cent. such cases—a percentage so small that it is quite obvious that Brugger had not got hold of all the cases he searched for. A few years later Brugger made a similar investigation in a Bavarian area comprising 6,000 inhabitants. This time he tried to investigate all persons living in the area. He found 7·5 per cent. of mental disorders.

It is quite clear that regarding mental deficiency the investigations of Brugger could not be compared with those of E. O. Lewis, whose material was a hundred times greater and was investigated to a great extent with mental tests. Further, Lewis's samples were probably representative, while Brugger's area was rural and to a great extent afflicted with cretinism.

These investigations of Lewis and Brugger were the most recent models for further studies when in 1931 I began to plan my survey of the island of Bornholm.

I think I must say a few words about the reasons I had for choosing this island for investigation. Bornholm belongs politically to Denmark, but geographically to Sweden. It is situated to the south of Sweden and about 90 miles south-east of Copenhagen. Anthropologically the population is identical with that of Denmark and Southern Sweden. It is quite understandable that the Bornholmians have been to a certain extent isolated from the rest of Denmark, and their language has a definite accent, which is easily distinguishable from all other Danish dialects. The population is very homogeneous and there is no intermarrying of any importance. The island has forty-six thousand inhabitants who know each other fairly well. It is, therefore, always rather easy to get sufficient information about any Bornholmian. If they leave Bornholm you can trace them by their dialect. In many Bornholmian families extensive records of their ancestors and other relatives are kept. No wonder, then, that this island is an excellent object for a geneticist. The island has its own general hospitals, but severe psychiatric cases have to be sent to a mental hospital on Seeland. During the last hundred years the psychotic Bornholmians have always been sent to the same mental hospital.

There could be no doubt, then, that this population must be fine material for a psychiatrist interested in genetics. It would be possible to trace most families through several generations, and it would be easy to determine the morbidity of the Bornholmian general population for comparison. On the other hand, it was not certain that this population was representative of the Danish population as a whole. This, however, turned out to be most probable. In fact, the population of Bornholm in most respects is similar to the average Danish population outside Copenhagen. One half of the inhabitants are living in small towns, the other half in rural districts. The social state is just like that found in other parts of the country. In Denmark few are very rich and few are very poor, and this holds true of Bornholm too.

Diseases seem to be of the same kind and frequency in Bornholm as in Denmark as regards somatic diseases as well as mental diseases. All figures known about these frequencies are on the average Danish level. With regard to the number of persons admitted to psychiatric hospitals, there is the best possible accordance, too. It should be possible, then, to deduce from the findings on Bornholm the state in other non-metropolitan areas in Denmark.

It was of great importance for medical investigations on Bornholm that the attitude of the population towards hygienic measures has for a long time been understanding. Many of the inhabitants have seen that most diseases can be effectively fought on Bornholm because of its isolated geographical state. They have seen that tuberculosis in their cattle has become completely eradi-

cated, and the same fate now seems to reach human tuberculosis. So it is quite natural for the Bornholmians to take active part in battles against disease.

My personal investigations on Bornholm began in 1933. Before that I had been assistant to the mental hospital to which the Bornholmian psychotics are admitted. At that time I knew already most cases of severe psychoses from that island. In 1934–35 I held a position in the general hospital of the capital of Bornholm, a town called Rønne. In this hospital nearly all psychiatric cases of the island were treated. Coming in touch with a great deal of physically diseased people and their relatives, I had the opportunity of knowing the population fairly well. I came in touch with all doctors and many municipal officers of the island. Furthermore, about 1,000 homes were visited. Having no social worker I had to make all visits personally.

I made six series of investigations. The three first of them aimed at determining the morbidity of the general population, using the propositus method of the Munich School. The three groups had about 150 propositi each. The first group consisted of patients admitted to the general hospital for non-psychiatric reasons. The mental health of these propositi was examined, and so was the health of their siblings and parents. The second and third series of propositi consisted of all persons living in Rønne on a certain date and being 33 or 34 years of age. Their siblings and parents were examined. The reason for selecting the two last-named groups of propositi was a mere practical one; at that time a great tuberculosis investigation was going on on the island, all people between 16 and 35 years being examined. It was very easy, then, to get in touch with these people. For psychiatric purposes the two oldest age groups were the most suitable.

When these three groups were added to each other there were 427 propositi and 1927 siblings. Mental abnormality was found in 12·4 per cent. of the propositi and 5·0 per cent. of the siblings. The first-named incidence must be said to be amazingly high, most of the propositi being rather young. The difference between the incidences among the propositi and among the siblings could only partially be explained by the fact that the propositi had been under the closest personal observation. Another point of importance is that although the first group of propositi, the patients of the general hospital, were not admitted for psychiatric reasons, there might be a positive correlation between admission to general hospitals and mental abnormality.

Of the siblings 2 per cent. were, or had been, psychotic and 0·7 per cent. were feeble-minded. Among the parents of the propositi the incidence of psychoses was higher, and that of mental deficiency lower.

This material was used for a small calculation of the probable effect of eugenic measures towards the incidence of psychosis. Among the siblings of the propositi were found 36 cases of psychoses, but only eight of these had psychotic parents, although there were 27 psychotics in the parental generation. If all psychotics in the older generation had been sterilized, the incidence of insanity in the following generation would have declined from 1·9 per cent. to 1·5 per cent. Unfortunately most of the children had been born before the outbreak of the parental psychosis. Only in one case could one say that

sterilization had possibly prevented a case of psychosis from appearing in the next generation. This was undoubtedly a rather disappointing result.

As to the incidences found in this material, there was good agreement with other material published up to that time.

The fourth series of investigations comprised a census of a small district of Bornholm, a parish called Rø, containing about 1,000 inhabitants. This district was chosen because it was extraordinarily easy to get good information about every inhabitant. The result was that 12 per cent. of all persons above 20 years were (or had been) mentally abnormal; 2·8 per cent. were psychotics or ex-psychotics and 3·1 per cent. were mentally deficient. This survey was, in fact, a social survey. The social state of all inhabitants was thoroughly investigated. It came out that only in 60 per cent. of the cases of mental disorder had this disorder had any influence on the social state of the patient.

It is a rather difficult thing to compare the results of propositus investigations with those of a census. The differences are obvious. A census only comprises living persons, while a propositus investigation comprises the deceased too. Mentally abnormal persons, especially psychotics, have a greater mortality than the average population, and they will therefore not be adequately represented in a census. If a comparison of the results of the two kinds of investigations must be made, it will be necessary to compensate the excess in mortality of the psychotics. Generally it is impossible to do this, but in a restricted area, where it is possible to ascertain all cases of psychoses which have appeared during the last two generations, the amount of the compensation can be calculated. The demographic conditions in our material allowing such a procedure, a special method was devised. It was applied with the result that it could be said that our census investigation had given almost exactly the same incidences for the endogenous psychoses as had been found in other countries by propositus methods. The excess of mental disorder found in other materials was due to the occurrence of psychoses or defects that are generally not so easy to identify as the great endogenous psychoses.

The fifth investigation consisted in an attempt to identify all persons on Bornholm living on a certain date and suffering from (or having suffered from) psychosis. An attempt was made to ascertain not only persons who had been treated in hospitals, but also persons who had been treated at home or those who had not been treated at all. Among the 46,000 inhabitants of the island were found 525 such persons, that is, 1·14 per cent. Of these, 0·31 per cent. were in hospitals at that date, 0·4 per cent. were still psychotic, but not in hospital, and 0·44 per cent. had recovered from their psychoses.

If conditions were the same in Bornholm as in the rest of Denmark it was to be expected from these figures that in all Denmark 11,500 persons must be in mental hospitals or psychiatric departments of general hospitals. In fact 11,000 persons were found in such places. The agreement seems to be as near as possible. There would, therefore, be good reason to assume that other incidences could be generalized. In Denmark, therefore, there would presumably be about 14,000 psychotics who were not in hospitals and 16,000 persons who had recovered from psychoses. The population of Denmark amounted to 3,600,000 at that time.

In the sixth investigation we endeavoured to ascertain all cases of psychoses appearing in Bornholm since 1856. It turned out that only the cases beginning after 1890 could be detected with a sufficient degree of certainty. There were 900 such cases, 20–30 per cent. of them being schizophrenics and about 20 per cent. manic-depressives. The relatively great incidence of schizophrenia probably means that in earlier times only the more severe psychoses were always recognized. In the last generations there is a prevalence of psychogenic reactions.

An analysis of the variations of incidence during the 40 years preceding the investigation showed that there had been a rather slow increase of first admissions in this period. During the first 30 years the rate of first admissions for psychoses was about 4 out of 10,000. After 1925 there was a more rapid rise, so that in 1935 the rate was 10 out of 10,000. This rise was predominantly due to admissions to hospitals and clinics other than mental hospitals.

Among the six series of investigations there was, of course, a good deal of overlapping. Most of the propositi appeared in more than one series. This overlapping served as a good basis of control.

As a total result of the different surveys it could be mentioned that about 14,000 persons were registered, 1,700 of these being abnormal mentally.

Since 1938 I have had no opportunity to continue the investigations on Bornholm, but Dr. K. H. Fremming has made a survey there during the last eight years. His method was quite different from those applied by me. He used the so-called Klemperer method, which was first used by Klemperer in 1933. Klemperer chose 1,000 propositi quite arbitrarily from the birth registers of Münich. All his propositi were born between 1880 and 1890. He tried to make a katamnesis of them with special respect to their mental state. No doubt this method theoretically is very adequate, but practically it is rather difficult to handle, because it is not possible to trace all propositi. Klemperer only found 70 per cent. of them, and his results consequently were rather uncertain. It is quite clear that this method could only be used successfuly in a population where individuals are easy to trace. Fremming's propositi were 5,500 persons born in Bornholm in the years 1883–87. He succeeded in ascertaining more than 92 per cent. of the propositi, most of these having passed their 55th year. He got his information from municipal registers,

*Dr. Fremming's Investigation* (*Katamneses of* 5,500 *Persons Born* 1883–1887).

| | |
|---|---|
| Mental disorders (all kinds) | 12 per cent. |
| Psychoses | 4·1 ,, |
| Schizophrenia | 0·9 ,, |
| Manic-depressive psychosis | 1·6 ,, |
| Epilepsy | 0·5 ,, |
| Inferior intelligence | 3·0 ,, |
| I.Q. below 75 | 1·3 ,, |
| Psychopathic constitution | 3·1 ,, |
| Psychoneurosis | 2·2 ,, |
| Criminality | 1 7 ,, |

parish registers, the relatives of the propositi, their neighbours, their doctors, and so on. He had to make about 2,000 visits. Fremming made a thorough demographic analysis of his material both in medical and in social respect, and he was especially interested in diseases of social significance. The incidence of psychoses was 4·1 per cent., namely, 3·0 per cent. for males and 5·3 per cent. for females. The risk of schizophrenia was 0·9 per cent., in good accordance with other investigations. The incidence of manic-depressive insanity, however, was much greater than usually found by others. This incidence was 1·6 per cent. to 1·0 per cent. for males and 2·2 per cent. for females. Fremming found many cases which had never been to hospital. Only 15 per cent. of these patients were psychotic on the date of the investigation, and only 3 per cent. were in hospital. I am inclined to believe that this incidence of manic-depressive psychosis found by Fremming could be generalized.

For epilepsy he found a risk of 0·5 per cent. and for reactive psychoses 0·9 per cent. Of the last group 70 per cent. had been mentally abnormal before the onset of the psychosis. 3 per cent. of the propositi were of inferior intellect and 1·3 per cent. were definitely feeble-minded, that is, having an intelligence quotient of less than 75. 3·1 per cent. of the propositi were of a psychopathic constitution. Among the males 3·5 per cent. were alcoholics. Of the drunkards 49 per cent. were mentally abnormal in some other way too; 26 per cent. were psychopaths and 16 per cent. were lawbreakers. 2·2 per cent. of the propositi were suffering from (or had been suffering from) psychoneurosis.

As a general result of his investigation Fremming mentions that 12 per cent. of his propositi had been mentally abnormal, which is in the closest possible agreement with the percentage found by me in the same population, but by means of fundamentally different methods.

In a survey of the social importance of mental disorder Fremming states that among the psychotic and ex-psychotic 38 per cent. were unable to work; among the other abnormals 27 per cent. Of the psychotics 20 per cent. were in hospital or in asylum; of the others only 3·5 per cent.

The incidence of organic nervous disease was 1·8 per cent.

With respect to criminality Fremming found an incidence of 2·8 per cent. among males and 0·6 per cent. among females. 47 per cent. of the criminals were diagnosed as mentally sound; 28 per cent. had a psychopathic constitution; 10 per cent. were of inferior intellect.

In Fremming's material 1·5 per cent. of the deaths were due to suicide. Half of these persons were psychotics, one-fourth were mentally abnormal in some other way, and only one-fourth seemed to have been healthy.

Next I should like to mention a recent survey made by the Danish Social Ministry. The investigation has not been finished, and no results have been published as yet, but the Ministry has allowed me to mention some of them on this occasion. The aim of this survey was an analysis of persons who have got support from the municipality for an unusually long period and not for obvious medical reasons. The propositi were 1,100 persons, who, from April, 1944, to April, 1945, had received poor-law relief for more than 8 months. The propositi were chosen quite arbitrarily from different areas in Denmark, representing all kinds of populations. For every propositus a complete social

anamnesis was made by municipal officers. Then a social worker gathered more details regarding the anamnesis. All institutions that had been in contact with the propositus were asked to give information about him, schools, employers, colleagues, hospitals, etc. A great majority of the propositi were then examined by two doctors, specialists of general medicine and psychiatry respectively. In many cases other examinations were made, e.g., X-ray, electrocardiogram, ophthalmological, and others.

This material having been collected, each case was made the subject of a discussion by a committee consisting of four or five doctors and two officers of the ministry. In all cases an attempt was made to find the cause of the propositus's failure, and the possible measures to improve his social condition. Not all cases have been finished as yet. The figures given in the following may therefore be somewhat altered later on. As will be seen in the table the morbid

*Danish Investigation of Persons Receiving Municipal Support for Long Periods. Causes of Social Failure.*

| Causes. | Males. % | Females. % |
|---|---|---|
| Illness : | | |
| Mental | 50 | 31 |
| Physical | 34 | 28 |
| Alcohol or drug addiction | 1 | 0 |
| Social : | | |
| Divorce | 0 | 17 |
| Husband in prison | 0 | 1 |
| Worn out | 1 | 5 |
| Many children | 5 | 6 |
| Children cannot be taken care of | 0 | 3 |
| No working possibilities in profession | 2 | 0 |
| Wages too low | 1 | 3 |
| Lack of initiative | 1 | 3 |
| Dislike of work | 1 | 1 |
| Previous criminality | 2 | 0 |
| Careless mode of living | 1 | 0 |
| Other causes | 1 | 2 |

causes of inefficiency were quite dominating. Among males mental disorder was a principal cause in 50 per cent. of cases, among females in 31 per cent. All morbid causes together were responsible for the social failure in 85 per cent. in males, in 59 per cent. in females. Among females the strictly social causes were of a relatively greater importance than among males. The principal difficulties arose for the females in connection with divorce, the wife being unable to get a position of her own at once after divorce. With respect to other causes, there were no significant differences between sexes.

It would be seen from the headings of the " social causes ." that some of these in some way or other are connected with specific mental traits of the propositus, these, however, not being of a kind which could be said to be definitely morbid.

I think of the headings "lack of initiative" and "dislike of work." It might become the subject of an interesting discussion whether these conditions could be said to be normal or not.

The rates given in the table comprise the *principal* causes only; in a great deal of further cases pathological causes were contributing to the social failure.

As to the possibilities of work for these propositi the committee arrived at the following conclusions: Of males 14 per cent. had full power to work, 56 per cent. had a reduced power, and 30 per cent. were without working possibilities. For females the rates were 10 per cent., 50 per cent., 40 per cent. respectively.

This material was tainted by the fact that during that period the degree of unemployment in Denmark had dropped to a minimum. It was therefore quite natural that a material consisting of people who could not be employed at a time when employment conditions were optimal must to a great extent comprise extreme minus variants.

In Finland during the last ten years two great social surveys have been made. The results were published by Kaila in the *Acta psychiatrica et neurologica* in 1942. The first survey was performed by the Social Ministry, which wanted to know how many insane and mentally deficient persons were living in the country. Seventy-two boroughs and parishes were chosen arbitrarily as samples. Together they comprised 12 per cent. of the Finnish population. All hospitals and asylums in the areas had to report their patients. The police and the different municipal officers made lists of all persons who they thought were abnormal mentally. By these means about 5,000 persons were reported, and all these persons were examined by psychiatrists. Finally the incidence of psychoses was found to be 0·65 per cent., and that of mental deficiency to be 0·44 per cent. Of course these rates must be regarded as minimum rates, because only such persons were reported who were obviously insufficient.

The second survey was made by the bureau of social insurance. All invalids in the country were asked to announce themselves, and all municipal offices and hospitals, homes, etc., were asked to register all socially insufficient persons. By these means the incidence of psychoses was found to be 0·79 per cent., and that of mental deficiency was found to be 0·44 per cent. The results were thus quite similar to those found in the first investigation. It seems as if the criteria used in the two surveys have been practically the same.

Kaila found that mental deficiency and epilepsy were not equally distributed over the country. He tried to find out which social characteristics these incidences were correlated to, and he stated that the incidences were highest in those areas that had the highest birth-rates, the highest mortalities, the habitations of most inferior quality, the greatest numbers of persons supported by the municipality, and the most extensive emigration. It was quite striking that the feeble-minded were much less inclined to change their habitation than were the average population.

In Norway there has for several years been a very adequate registration of insanity. Ödegaard has made very thorough statistics of admissions to psychiatric departments during a period of ten years. His work was published

last year in the *Psychiatric Quarterly*. I believe it is one of the most reliable statistical studies of this kind.

It seems as if I prefer the Scandinavian investigations, as I have now for a while talked only about them. I hasten to stress that this is not because I believe them to be of a better quality than other investigations. The reason is that I know this material comparatively well, and that I can estimate to what degree the results are reliable.

It is well known that in America some great psychiatric surveys have been made lately. As an example, I need only mention the investigations of Dayton in Massachusetts. It is not, however, always easy to say what the figures of Dayton really mean. Of course the rates of the total group of psychoses must be rather reliable, but Dayton himself stresses that the delimitation between the diagnostical sub-groups is very uncertain, the diagnostical criteria of the various hospitals being hopelessly different. In some state hospitals 9 per cent. of admittances are schizophrenics, in others 41 per cent., which cannot solely be the fault of the patients.

If I should say a few words about the ways and means of future social surveys I should like to stress that a combination of intensity and extensity of the surveys is essential. The surveys must be so big that we may be allowed to generalize from them, but we must know the structure of the material very closely. The surveys will generally be of such an extent that it will be necessary to have a staff of collaborators, medical and non-medical. It is a good thing, though, if the leader of the investigation takes active part for a period in the routine work, so that he comes to know every link of his future conclusions. Regarding the medical co-workers, I want to stress that field-work of this kind is, according to my opinion, the best way of clinical training which a psychiatrist can have at all. It ought, therefore, not to be difficult to get the best young psychiatrists as helpers in these surveys.

With regard to the registration, it is a good thing to bear in mind that it should be possible to use the material for other purposes in the future. If, for example, a new potent kind of therapy should be invented, it would be of the greatest importance if at once you could see from the material how many persons ought to be treated with this new therapy, how many doctors and hospital beds would be necessary for this purpose, how much money it would cost, and how much it would save. Generally it is quite obvious that it makes a good impression on those who have to find the money for a prospective therapy if you can give them reliable figures as to the amount and the " interest " of the money required.

I am very glad to have heard Dr. Blacker's remarks about the problem of terminology. Of course this is a point of exquisite importance. With some excellent surveys it is true that practically we cannot use them because we don't trust the diagnostical criteria. It is certainly to be hoped that the committee of the World Health Organization will succeed in establishing an international psychiatric terminology. The preliminary list of diagnoses published in April, 1947, seems to be of high quality, and it ought to be possible for all psychiatrists to agree with the main points of it. Of course I must agree with Dr. Blacker that the sub-groups of the psychoneuroses are not

convincingly differentiated from each other, but if every label were followed by a short description, as Dr. Blacker proposes, and as has been practised in the *Statistical Guide* of the State Hospitals of New York, much misunderstanding could be saved.

Of course you should not force individual psychiatrists to give up completely their own terminology, which each always think to be the best in the world, but you could ask them gently and firmly to use in their publications—or in the tables at least—not only their personal terminology, but also a "translation" into the international terms.

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