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## THE TOMBSTONE OF PHYSICS

Frank Harris was Chairman of the Board of Hilltop College. On the morning of this sunny day he drove out to the campus of the college which was about twenty miles from the center of the town, to play a part in the celebration of the Accelerator Building. This building housed the great cosmo-cyclotron, the largest one in the United States built to date. It was built at a cost of five million dollars, which came, as you would expect, from the Army and Navy.

This was a great day for Hilltop College. It was a great day for the college and a triumph for its young President, Fred Miller. Two years earlier, when the project was first presented by him to the Board of Trustees, Harris and the other members of the Board, all of them solid citizens of the state, voiced their misgivings.

In favor of the project was the fact that the initial cost was underwritten by the Government. Moreover, somehow Miller had been able to wangle a ten-year contract out of the Army and Navy, in which they undertook to reimburse the University one million dollars a year for the cost of water and electricity which the cosmo-cyclotron would consume as soon as it was fully operating. But ten years is a short period of time in the lifetime of a college. No scientists of standing could be hired by the college without being given tenure which meant that the college would have to guarantee their salaries until they reached retirement age. An endowment of the college was certainly not sufficient, according to the rules of sound business practice, to guarantee sharies for such a long period of time.

Fred Miller had started out as a scientist, and the Presidency of Hilltop College was his first experience in administration. He was hand-picked by Harris himself and sold by him to the other members of the Board. Harris took a liking to Miller at first sight when he interviewed him for the job. What had won his heart more than anything else was the frank admission of the young man that he decided to become an administrator because he realized that he could not make the grade as a scientist. For a number of years from that very first meeting and until the very day when Miller brought his big project for the first time before the

Board of Trustees, Harris and Miller were very close to each other. From that time on, however, during the whole period of time while Miller's big project was up for discussion, Harris and Miller took opposite sides on every single issue that came before the Board. Six members, during that period of time, supported Harris right or wrong, and another six always lined up with Miller, while the four remaining members played politics, each of them throwing his vote sometimes to Harris and sometimes to Miller without a discernible connection with the merits of the case. It is perhaps worthy to note that, in spite of this state of affirs in the Board, the tone of the monthly meetings remained gentlemanly with Harris and Miller opposing each other in a manner which was free, at least on the surface. This friendtiness came to an end only when the big project at the last came up for a decision.

Those who read the minutes of this meeting will see that in the beginning all Board members went on record expressing some concern about the financial responsibilities that the project would involve for the college. Some of the members were quite violent in stressing this point. After a while, a recess was called, and, when the meeting reconvened two hours later, Miller gave an impassioned speech in which he stressed the great service that the college would render to National Defense by adopting his project. He also expressed his firm conviction that within five years the project would solve the problem of cancer by utilizing the high energy radiation produced by the joint machine. Most of the members of the Board were well above 50 years of age and knew well enough, what Miller did not fail to stress, that each one of them had one chance in four to die of cancer within the next twenty-five years.

Whether it was due to their fear of cancer, to Miller's eloquence or to the drinks that had been served to them during the recess, many of the Board members began to take a more free attitude towards the President's project.

Even so, it seemed still likely that the project would be voted down by a majority up to the time when Frank Harris rose to speak.

With unprecedented violence and ill-temper he attacked the project. He questioned Miller's sincerity, accused him of thinking of his own glory only without regard to the welfare of the college, and finally he expressed doubt of

the soundness of mind of any member of the Board who would vote for the project.

Immediately afterwards, the project was put up to vote at the motion of one of Miller's friends, and was carried by a small majority.

It was generally expected that Frank Harris would resign from the Board, but he did nothing of the sort. As a matter of fact, the relationship between Harris and Miller began to improve, and pretty soon thereafter they were just as close to each other as they had been in the early days. No one could quite understand how this happened, but there were those who pointed out that Hilltop College was now the largest prospective consumer of water and electrical power and that Harris owned a major interest in the water works and the plant which supplied the town with electricity. To these men it seemed natural to expect that the majority stockholders of these corporations would want to be on good terms with the President of the college that is going to be the most important customer.

one who voiced a suspicion that Harris had opposed Miller and the men that he did only in order to get the Board to go along with the great project.

The celebration was supposed to last all day: speeches in the morning, a short recess for luncheon, and more speeches in the afternoon up to about five o'clock. There was a cocktail party scheduled for five o'clock at the house of the President, to which the members of the Board, a number of distinguished guests, and half a dozen members of the staff of the college, all of them scientists, were invited.

Frank Harris spent the day, as was his duty, listening to speeches. Most of the speakers were University Presidents. Generally speaking, Harris had no particular liking for university Presidents. He used to say that there was little that distinguished this profession from the oldest of the professions except af course that it was less pleasurable.

 Because none of the members of the Board had such clearance, no visitors would be allowed to the interior of the building on the present occasion. Arrangements had been made for a reception, however, on the roof garden of the building which later on would serve for the recreation of the staff when weather permits. purple remander tables within a short period of 10 years into one of the transformed Hilltop College within a short period of 10 years into one of the best under-graduate colleges of the United States. Within 10 years men graduating from Hilltop were sought after by the best graduate schools which valued ability and accomplishments in the field of scholarship and in science. Over 80% of the men who receive a B.A. from Hilltop obtain a Ph.D. degree at some university or another. (Hilltop itself remains what it always was, an undergraduate college which does not go beyond a B.A. degree.)

How was this astonishing feat accomplished? The first official action of Dick Burton as President of the College was to propose to the Board to make Hilltop a co-educational institution and he got the members of the Board not only to agree to this but also to dig into their own pocket and make available to Hilltop 200 scholarships for girls. It had always been very difficult to say "No" to Dick Burton. / Dick Burton proposed to bring up the total enrollment to 800, 400 of which would be girls. "Gentlemen", he said to the Board, "please believe me that what I am doing, I am doing with my eyes open. I am aware of the fact and I want you to be aware of the fact that girls who go to college Americal fall into two classes: those who go to college only in order to matring pyet to flirt and those who seriously intend -- to get married. Having won his point with the Board be accepted a Committee of 350on to be didn't take long before you could hear some grumbling on the Campus on the sulso cross olomin and part of faculty members. They alleged that scholarships to girls were awarded purely on the basis of beauty and that High School records and college entrance (Indeed examinations were completely disregarded. It was undeniable that all girls admitted to the College were, in fact, exceptionally pretty and that very few were bright. Within a short period of time, this lead to a major row on the Campus and there were many members of the faculty who demanded that the Committee anized. Even though the more level-headed members of the on Admission be reorganized. staff made an effort to avoid a public scandar, it doesn't seem that they received hot-headed staff members talked to their friends the worked on the local paper and pretty soon a fight was fought in the columns on the services between the columns on the selvels because the services to the property of th otrobosing must applied there is Phrower a while exclusion " Being absure never sevented bed my person at and it was not easy ho

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as a mather of food a watter of fact seem to mind, he rather seemed to enjoy himself and when somebody told him that the story held the front page of the NEW YORK TIMES, he rubbed his hands in satisfaction. Shortly afterwards, LIFE, LOOK and COLLIER'S started to compete with each other in putting the pictures of some of the prettiest co-eds on their cover page. Pretty seen it was evident that the College was famous for the beguty of its co-eds but few people on the faculty, or for that matter, anywhere t foresaw what was to come. The fight between the President and the faculty went on hard even with forever increasing bitterness, when towards the end of the term, and Burton, to everybody's surprise, yielded by offering a compromise. He proposed to have two Admission Committees, his own Committee which was to continue to pass a new) over the applications submitted by girls and to Committee elected by the faculty which was to handle applications by boys. The compromise was accepted and to spener was the faculty committee set us when to its great surprise, it was swampe the new lifes and horself the man to operate helical with 4000 applications from boys, which was 10 times as much as for any of the livel applied and it was swamped They could take no more than 100 boys in the freshman class and previous years. it took hard work to pick out the 100 best students from among 4000 applicants. But the faculty committee had sense enough to see that here was an opportunity to make Hilltop de one of the best schools in the Country. There was much excellent material among the 4000 applicants and Burton was willing to give them personal interview to every student before deciding to admit him, The money was helpful but even then, they had to do much hard work and spend many long hours. They didn't bargain for this when they clamored for the responsibility but they did the job without grumbling and a good job they made of it.

The rest of the story is, of course, a matter of record? By now, the reputation of Hilltop for the scholar standing of its men has over-shadowed its reputation for the beauty of its co-eds even though the co-eds are no less pretty than they were before. Whether today the large number of applications received that they have by Hilltop is due to its reputation for its scholarly standing to the applications of the standing of the scholar standing to the standing of the standing to the standing to the standing of the standin

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ential man in that Body, and even though this may be in part due to his seniority, which he acquired, much of it is also due to his native ability. To everybody's surprise, Harris picked for the Presidency of the College as Burton's successor, Fred Miller who ran against Burton on the Democratic ticket and was defeated. Some people thought that maybe there had been a deal but I can deny this from my own personal knowledge. Miller had put up as good a fight as he could but what can you do if the national ticket is headed by a dope and if there is a Republican landslide. Also, Burton was hurt by his success at Hilltop whereas Miller could point only to a brilliant future.

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Miller hadn't held his office for more than two years when he first presented his great project to the Board of Trustees, just about two years ago. At that time Harris, as well as the other members of the Board, all of them solid citizens of the State, voiced some misgivings about it.

In favor of the project was the fact that the cost of the building, as well as the cost of the accelerator itself, was under-written by the Government.

Moreover, somehow or other Miller had been able to wangle a ten-year contract out of the Army, and Navy out of which they undertook to reimburse the University one million dollars a year for the cost of water and electricity which the Cyclotron would consume as soon as it was fully operating. But there were no provisions for paying any salaries to scientists who were needed to operate the giant machine and to carry on a research program. No scientist of standing could be hired by the thing.

College without being given tenure, which meant that the College would have to guarantee their salaries until they reached retirement age and the endownment of the College was certainly not sufficient if it was to follow some business practice to undertake any such guarantees.

Fred Miller started off as a scientist and the Presidency of the College was his first experience in administration. He was picked by Harris and sold by him to the other members of the Board. Harris took a liking to him at first sight when he interviewed him for the job. What had won his heart more than anything else was the frank admission of the young man that he decided to become an administrator because he realized that he could not have made the grade as a scientist.

From that time on for a number of years, Harris and Miller were very close to each other. But, about six months preceeding the day when Miller brought his big project before the Board of Trustees, Harris and Miller began to take opposite

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If you read the minutes of that memorable meeting, you will see that when it opened practically all the board members expressed some concern about the financial responsibility that the project would involve for the college, except that some were more violent in stressing this point than others. A recess was called and when the meeting reconvened, Miller gave an impassioned speech in which he stressed the great service that the College would render to National Defense by the embarking on this project. He also expressed his firm conviction that within five years the project would solve the problem of cancer by utilizing the high energy particles produced by the giant machine. Most of the members of the board were well above fifty years of age and knew well enough what Miller did not fail to stress, that everyone of them had one chance in four to die of cancer within the next twenty-five years.

Whether it was due to this consideration, to Miller's eloquence or to the drinks that had been served to them during the preceeding recess, the members of the board began to take a more friendly attitude towards the President's project.

Even so, it seemed likely that the project would be voted down, up to the time when Frank Harris rose to speak.

With uprecedented violence and ill temper, he attacked the project. He questioned Miller's sincerity, accused him of thinking of his own glory only without regard to the welfare of the college and expressed doubt of the soundness of mind of any member of the board who would vote for the project. Immediately afterwards the project was put up to a vote at the motion of the President and was carried by a small majority.

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There was a cocktail party scheduled for about 5:00 in the house of the President to which the Board of Trustees, a number of distinguished guests and half a dozen members of the staff of the College had been invited. Frank Harris spent the day, as was his duty, listening to the speeches. Many of the speakers were University Presidents. In general, Harris had little liking for members of this for members of this profession. It's just like the oldest profession, he once said, except perhaps that nebody gets any pleasure out of it."

Miller's speech of welcome was short. He explained that because the great project is supported by funds from the Army, Navy and the Atomic Energy Commission, only visitors who have clearance from Army Intelligence, Navy Intelligence, and the F. B. I. could be permitted to enter the interior of the Accelerator Building.

Because none of the members of the Board of Trustees had such triple clearance and only very few of the guests, it had been regretfully decided that no visitors would be allowed in the Building on the present occasion. Arrangements had been made for for the field of garden, which latter on will serve for the recreation of the staff when weather permits.

The keynote speaker of the day was the President of one of our oldest eastern colleges which was originally well endowed and one of the best of the Nation. But now as most of the other private colleges, it was short of funds and its Presi-

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But nobody even listened to Bill Stanton.

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dent spent most of his time and attention on fund raising campaigns.

The title of the keynote speech was "Science and Religion." The speaker started out by quoting what others had said on the subject and he quoted among them Albert Einstein who had said that "Science without Religion is lame and Religion without Science is blind." Immediately after that he began to talk about God and the free Nations.

God and must, therefore, in the end, turn out to be victorious. He praised the virtues of the United States which he described as a God-fearing Nation, deplored the moral weakness of our allies and he condemned as evil our potential enemies. Before he had become President of his University, he had been Assistant Secretary in the State Department and this might perhaps explain why he talked of God as if he were an employee of the State Department and one whom we could trust to do his duty.

He told his audience that he knew from personal experience that most members of our Government pray to God before they make any major political decision and suggested that our scientists would do well to do likewise before they undertook an important experiment.

He said that we must uphold academic freedom at all costs but that academic freedom had its limitations and no member of a University must be permitted to to claim the protection of academic freedom if he publicly denied the existence of God thereby giving aid and comfort to our enemies as well as endangering the good public relations of the University.

Harris was a deeply religious man who considered all this as a most revolting form that blasphemy could take but he sat dutifully through the speech, applauded when it ended and sat through the rest of the speeches, which — if less obnoxious were no less boring.

The last speaker was president of another of our eastern universities who spoke about the importance of the study of humanities for our culture. He expressed deep regret that the best men in the division of humanities of his own university, having found it impossible to live on their salaries, resigned in order to take more lucrative positions. He explained how the Board of Trustees through their public-spirited action made it possible for the remaining members of the humanities department to remain on the compus by offering everyone of them a

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position as librarian at a 15% salary in the twenty million dollar library built to the style of colonial Williamsburg with the funds generously donated to the University by a public-spirited citizen whose name he was not free to mention.

Whether because he didn't like colonial Williamsburg or whether just because he thought that enough was enough, Harris, rose at this point from his seat and smeaked out of the hall. He walked thru the park towards the house of the President, The house was deserted by Arinks and sandwiches were laid out on the terrace awaiting the guests arrival. Harris poured himself a drink and looked forward to an hour's peace and quiet.

He had hardly finished his drink when a young man walked up the steps to the terrace. It was Ted Whitney, young instructor in Physics, whom Harris had known from his childhood. He had been obviously invited, not because of his scientific eminence but because his father was a member of the Board of Trustees. "How do you like the new building", Harris said, "it is ugly enough to look scientific, isn't it?" "It looks like a tombstone," said Ted, "and maybe it is a tombstone; the tombston of Science." "What do you mean," said Harris, "It will house the largest Cosmo Cyclotronin the United States, which is the tenth machine of this type that has been built in the past five years. has him to another ane ald one be manned if it were built. such machines in existence to keep busy all the physicists who will graduate in the physicists that quickly become the slaves of these machines. Of them will have a chance to follow up a hunch if it means doing experiments for three end five years and risk failure in return for a chance to find something really important. This machine is here in the tombstone and will that must up probably be in charge of the research committee all experiments. To run the machine for one day it costs about \$2000. No committee will invest several thousand dollars in a young man's hunch. What experiments should be done will presumably be decided by majority vote in the Chile

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When talking around the luncheon table at the faculty club they will shy away from all controversial subjects or they will furtively look around their shoulder to see who is sitting at the next table, before saying anything that could be misconstured if misunderstood.

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There was some trouble when it turned out that it was impossible to get security clearance for 14 out of the 24 men. This could have become a very serious problem indeed if it could not be solved. But after another three months, through some miracle all of a sudden all these men received clearance from all the three Agencies involved.

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This work was awarded the Nobel prize for Medicine, one year later.

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the obscure college for man that it had always been if President Strong had not died and been succeeded upon his death by Dick Berton. Berton, who was (presidency) a school-mate and life-long friend of Harris', looked upon the presidents of Hilltop College as a springboard for a political career. Because of his distinguished subsequent service in Washington, his name is known today throughout the United States. Though not many people remember today that the senator started his career twenty years ago as President of Hilltop College, even fewer

".... a college, of course, must uphold scholastic values but clearly these values are not the only ones that count, nor do those other values necessarily conflict with the scholastic ones." Being obscure never prevented him from being persuasive and it was not easy to say "No" to Dick Berton. So he won his point with the Board. After this he appointed a Committee of Admissions composed of his personal friends on the faculty and took the chairmanship himself. As the girls began to turn up on the campus, you could hear some grumblings on the part of certain faculty members who complained that scholarships to girls were apparently awarded purely on the basis of beauty and that high school records and college entrance examinations were completely disregarded. Bretty soon there was a major row on the campus and there were members of the faculty who demanded that the Committee of Admissions be reorganized. It was indeed undeniable that all the girls admitted to the college were exceptionally pretty and that none were exceptionally bright. The more levelheaded members of the staff made an effort to avoid airing the issue in public but it doesn't seem that they received much help in this from Berton. Soon the inevitable happened; some of the hot-headed faculty members talked to their friends on the editorial staff of the local papers and pretty soon the fight shifted from the campus to the columns of the newspapers. Berton did not .....

## THE TOMBSTONE OF PHYSICS

Frank Harris was Chairman of the Board of Hilltop College. On the morning of this sunny day he drove out to the campus of the college which was about twenty miles from the center of the town, to play a part in the celebration of the Accelerator Building. This building housed the great cosmocyclotron, the largest one in the United States built to date. It was built at a cost of five million dollars, which came, as you would expect, from the Army and Navy.

This was a great day for Hilltop College. It was a great day for the college and a triumph for its young President, Fred Miller. Two years earlier, when the project was first presented by him to the Board of Trustees, Harris and the other members of the Board, all of them solid citizens of the state, voiced their misgivings.

In favor of the project was the fact that the initial cost was underwritten by the Government. Moreover, somehow Miller had been able to wangle a
ten-year contract out of the Army and Navy, in which they undertook to reimburse
the University one million dollars a year for the cost of water and electricity
which the cosmo-cyclotron would consume as soon as it was fully operating. But
ten years is a short period of time in the lifetime of a college. No scientists
of standing could be hired by the college without being given tenure which meant
that the college would have to guarantee their salaries until they reached
retirement age. An endowment of the college was certainly not sufficient,
according to the rules of sound business practice, to guarantee sharies for such
a long period of time.

Fred Miller had started out as a scientist, and the Presidency of Hilltop College was his first experience in administration. He was hand-picked by Harris himself and sold by him to the other members of the Board. Harris took a liking to Miller at first sight when he interviewed him for the job. What had won his heart more than anything else was the frank admission of the young man that he decided to become an administrator because he realized that he could not make the grade as a scientist. For a number of years from that very first meeting and until the very day when Miller brought his big project for the first time before the

Board of Trustees, Harris and Miller were very close to each other. From that time on, however, during the whole period of time while Miller's big project was up for discussion, Harris and Miller took opposite sides on every single issue that came before the Board. Six members, during that period of time, supported Harris right or wrong, and another six always lined up with Miller, while the four remaining members played politics, each of them throwing his vote sometimes to Harris and sometimes to Miller without a discernible connection with the merits of the case. It is perhaps worthy to note that, in spite of this state of affirs in the Board, the tone of the monthly meetings remained gentlemanly with Harris and Miller opposing each other in a manner which was free, at least on the surface. This friendliness came to an end only when the big project at last came up for a decision.

Those who read the minutes of this meeting will see that in the beginning all Board members went on record expressing some concern about the financial responsibilities that the project would involve for the college. Some of the members were quite violent in stressing this point. After a while, a recess was called, and, when the meeting reconvened two hours later, Miller gave an impassioned speech in which he stressed the great service that the college would render to National Defense by adopting his project. He also expressed his firm conviction that within five years the project would solve the problem of cancer by utilizing the high energy radiation produced by the joint machine. Most of the members of the Board were well above 50 years of age and knew well emough, what Miller did not fail to stress, that each one of them had one chance in four to die of cancer within the next twenty-five years.

Whether it was due to their fear of cancer, to Miller's eloquence or to the drinks that had been served to them during the recess, many of the Board members began to take a more free attitude towards the President's project.

Even so, it seemed still likely that the project would be voted down by a majority up to the time when Frank Harris rose to speak.

With unprecedented violence and ill-temper he attacked the project. He questioned Miller's sincerity, accused him of thinking of his own glory only without regard to the welfare of the college, and finally he expressed doubt of

the soundness of mind of any member of the Board who would vote for the project.

Immediately afterwards, the project was put up to vote at the motion of one of Miller's friends, and was carried by a small majority.

It was generally expected that Frank Harris would resign from the Board, but he did nothing of the sort. As a matter of fact, the relationship between Harris and Miller began to improve, and pretty soon thereafter they were just as close to each other as they had been in the darly days. No one could quite understand how this happened, but there were those who pointed out that Hilltop College was now the largest prospective consumer of water and electrical power and that Harris owned a major interest in the water works and the plant which supplied the town with electricity. To these men it seemed natural to expect that the majority stockholders of these corporations would want to be on good terms with the President of the college that is going to be the most important customer.

Bill Stanton, Professor of Greek, and near retirement age, was the only one who voiced a suspicion that Harris had opposed Miller and the men that he did only in order to get the Board to go along with the great project.

The celebration was supposed to last all day: speeches in the morning, short recess for luncheon, and more speeches in the afternoon up to about five o'clock. There was a cocktail party scheduled for five o'clock at the house of the President, to which the members of the Board, a number of distinguished guests, and half a dozen members of the staff of the college, all of them scientists, were invited.

Frank Harris spent the day as was his duty listening to speeches. Most of the speakers were University Presidents. Generally speaking, Harris had no particular liking for university Presidents. He used to say that there was little that distinguished this profession from the oldest of the professions except perhaps that it was less pleasurable.

 Because none of the members of the Board had such clearance, no visitors would be allowed to the interior of the building on the present occasion. Arrangements had been made for a reception, however, on the roof garden of the building which later on would serve for the recreation of the staff when weather permits.

## The TOMBSTONE OF SCIENCE

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This was a great day for Hilltop College. It was a great day for the college and a triumph for its young President, Fred Miller.

Fred Miller was the third president of the college in Frank Harris' lifetime. When Harris joined the Board at the age of shortly after he ran for the Senate on the Republican ticket and was defeated, Hilltop College was an obscure men's school with falling enrollment and perennially under financial stress. Its President was old Michael Strong, a likeable fellow and rather conservative though he was enlightened enough in some respects. After he had been on the Board for a year, Wearis invited the old man over to his house for a weekend and asked him whether he didn't think that there were some changes which could be introduced in the College that might greatly improve matters. To his surprise, Strong was quite open-minded to most of the things that Harris thought the College might do and he listened amiably enough to those to which his mind was closed but on one point he seemed to be quite adamant; he did not want Hilltop to become co-educational and to admit girls however small in number. "You see", he said to Harris, "if a girl is pretty she will disturb my students and if she is ugly she will disturb me. " In all likelihood, Hilltop College would have remained unto these days an obscure college for men that it had always been, hadn't President Strong seen after is visit with Marris suffer a Gall Stone attack of which he died within the day. It was probably a coronary attack that was wrongly diagnosed in the College Infirmary but there is little that could have but there is little that could have but there is little that could have but the could been done for him at that point in any case. f sex alles President of the College by a schoolmate of Harris'

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