

in uterine cancer 66, and so on. This arises from the fact that there are three main methods in radium treatment, each of which may be associated with varied surgical or X-ray treatment.

Site	Earliest Stage of Disease		All Stages of Disease	
	3 years	5 years	3 years	5 years
Breast	70.1	50.0	37.2	24.6
Cervix Uteri ..	61.1	49.4	37.3	31.1
Lip	77.5	77.8*	63.8	53.6
Tongue	49.7	26.2	25.7	13.9
Floor of Mouth ..	62.0	53.6	36.2	31.0

* Small group of patients.

Difficulties in treatment are many, but no sentence in this report brings these difficulties more acutely to mind than the following:

"The proportion of patients in whom the disease is still localised to its original site and in whom there are no signs of local or metastatic spread when the patient is first seen amount, for all sites investigated, to only 25 per cent. of the patients. The marked difference in the survival

rates shows that for these patients the chances of survival are much more favourable than when either local spread or metastasis has taken place."

Of necessity the results of individual centres cannot be gauged when merged into the larger groups, so invaluable for statistical work. From the reports entitled "Medical Uses of Radium" issued for the last fifteen years by the Medical Research Council, this can be done for the centres taking part in its scheme of research. These reports also from time to time show the important results of radium treatment in certain non-malignant gynæcological conditions.

Radium has proved of service in the treatment of cancer, especially when the direction of the medical services has been in competent and inspiring hands. The tendency in treatment is for less interstitial work to be done, giving way to surface and distant applications of radium, the latter involving the use of bigger units, 1.5 grams. There is little doubt that, as the warrant is shown for the use of these bigger units, the country will see to it that the necessary radium is provided.

S. RUSS.

Centenary of the University of Göttingen

From a Correspondent

GÖTTINGEN is celebrating its bicentenary on June 30 of this year. Perhaps no university has maintained so high a standard of learning over so long a period as Göttingen. Among its illustrious professors have been Albrecht von Haller, a man of most varied genius and the first modern physiologist, Gauss, supreme alike as mathematician, astronomer and experimenter, Blumenbach, the humane and wise father of anthropology, the brothers Grimm, begetters of modern scientific philology, whose name is known in every nursery, Wilhelm Weber, associated with the measurement of electrical quantities, with terrestrial magnetism, with the electric telegraph and, along with his brother Ernst, with a multitude of physiological researchers, Ewald, the Hebrew scholar, commonly regarded as the father of scientific biblical criticism, Wüstenfeld, who traced the debt that European science owes to the Arabic-speaking world, and Henle, one of the greatest of anatomists, founder of the science of histology, whose name is attached to more than one structure of the body. These men and their colleagues and successors taught and inspired innumerable English-speaking students.

During the first third of the twentieth century, Göttingen fully maintained its historic standards. Its mathematical disciplines, especially, were held in the highest esteem. The great mathematical-physical group at Göttingen was, beyond all cavil, the most important scientific school in post-War Germany. Members of this school were among the first to re-establish contact with English colleagues after the War, and Göttingen was the first German university to receive English students.

The University of Göttingen was founded by George II of England, and opened on October 31, 1734. Thus an appropriate occasion for a bicentenary would have been the early autumn of 1934. At that time, however, both Germany and her neighbours were still very conscious of the effects of the official massacre, known as the 'clean-up', of June 30 of that year. The number who perished on that day is still not exactly known—the German Government has published no list—but a list of persons of political importance who disappeared about that time contains no less than 1,184 names. Further, it was towards the end of June 1933 that students and "black guards" (S.S. men) secured a great number of books from

the University library at Göttingen and burnt them in public without protest from the Rector. Memories are short, but it has been found impossible to secure complete forgetfulness of these events. The German authorities have, therefore, taken the prudent line of associating the day with other events. Last year the Heidelberg centenary celebrations were arranged to culminate on June 30, and this year June 30 is chosen for Göttingen.

Though 1934 might have been more appropriate for the celebration, 1937 is certainly the centenary of important events in Göttingen history. On September 17, 1737, the University occupied new buildings. In 1837, the liberal constitution that had been granted to the Hanoverians a few years earlier, was revoked by their sovereign, Ernest Augustus, son of George III of England. Seven of the most distinguished professors of Göttingen—the famous *Göttinger Sieben*—protested. They were expelled. The displaced professors included some of the greatest scholars of the age. Among them were Wilhelm Weber, the brothers Grimm and Ewald. These three events, therefore, the massacre of June 30, 1934, the burning of the books about a year before, the abrogation of the liberal constitution of 1837 and the expulsion of the professors in the same year, will be in the minds of many on June 30, 1937, when the Rector of the University of Göttingen has bidden guests from universities and learned bodies throughout the world to rejoice with him.

Those who join in the celebrations at the University of Göttingen will ask in what spirit that body interprets learned anniversaries. The question has been answered by its professor of ancient history, Dr. Kahrstedt, in an address at Göttingen on German Empire Day. He explained that that day was:

“the day to take this vow:— We renounce international science. We renounce the international republic of learning. We renounce research for its own sake. We teach and learn medicine, not to increase the number of known microbes, but to keep the German people strong and healthy. We teach and learn history, not to say how things actually happened, but to instruct the German people from the past. We teach and learn the sciences, not to discover abstract laws, but to sharpen the implements of the German people in competition with other peoples. If the German universities make and keep this vow, then it will naturally come about again that they are the first to be consulted in all cultural and spiritual questions.”

These sentiments and this confidence were echoed by the Minister of Education, Herr Rust, at the centenary celebrations at Heidelberg on June 30, 1936. Herr Rust said that “the National Socialist Government has, since 1933, got rid by a series of institutional measures of what was outworn and superfluous in the Universities”. We

may now therefore glance at these “outworn and superfluous” elements at Göttingen.

In its institute for mathematics, in its institute for theoretical physics, in its two institutes for experimental physics and in its institute for mathematical statistics, there were gathered together at Göttingen in 1932 as active and brilliant a group of investigators as were to be found anywhere in the world. Wholesale dismissals began in 1933, earlier at Göttingen than at any other seat of learning, and they affected especially these institutes which were the chief glory of the University. At the mathematical institute there was only a single survivor, while the other great institutes were also ‘cleaned-up’. Of the 238 members of the staff, 52—twenty-two per cent—were displaced. The readers of NATURE may be interested to learn the names of a few of these.

(1) Prof. Felix Bernstein at the time of his dismissal had been on the staff at Göttingen for twenty-five years. He was director of the Institute for Mathematical Statistics which was developed under his supervision. He now holds a chair at Columbia University, New York.

(2) Prof. Max Born has become famous for his work on the quantum theory and on atomic structure and is generally recognized as one of the most distinguished living exponents of theoretical physics. He now holds a chair at Edinburgh.

(3) Prof. Richard Courant is a specially stimulating teacher. He was the chief organizer of mathematical research at Göttingen. He is now a professor at New York University.

(4) Prof. James Franck won the Nobel Prize for physics in 1925 for his experimental confirmation of the basis of the quantum theory. At the time of his resignation he had been an “ordentlicher” professor at Göttingen for eight years. On resigning he wrote that he could not remain silent while his colleagues were being dismissed. Thirty-three professors and lecturers at Göttingen signed and published a protest against his “impertinent resignation”, accusing him of “sabotage”! Prof. Franck now occupies a chair at Johns Hopkins University.

(5) Prof. Hermann Fraenkel is very well known as an Hellenic scholar. He is now professor of Greek at Leland Stanford University, California.

(6) Prof. V. M. Goldschmidt, a geologist and mineralogist of international reputation, was liable to dismissal as a foreigner. He is of Norwegian nationality, having been born at Oslo where his father was professor. Many professors of geology and mineralogy in Germany signed a memorial that he might be retained. He was allowed to stay for a time, but his life was rendered unendurable and work impossible. He was given no sort of protection by the Rector or by the other authorities. He resigned and accepted a chair at Oslo.

(7) Prof. Edmund Landau is generally regarded as one of the great pure mathematicians of our time. His name is specially associated with the theory of numbers and the theory of functions. At the time of his dismissal he was director of the Mathematical Institute and had been for twenty-four years an "ordentlicher" professor at Göttingen. He is sixty years of age.

(8) Prof. Otto Neugebauer is one of the most distinguished living exponents of the history of science and especially of Greek astronomy and mathematics. He is now professor of the history of mathematics at the University of Copenhagen.

(9) Miss Emmy Noether had an international reputation. She was widely regarded as the most distinguished woman mathematician of our time and perhaps of all time. Her name is especially associated with the theory of groups. She died in exile in the United States soon after her dismissal.

(10) Dr. Karl Saller, an anatomist who specialized on questions of 'race', was dismissed because he could not teach the official doctrines concerning an 'Aryan race'. Dr. Saller was himself once a Nazi, but he could not endure the limitations laid by the Party on scientific inquiry, and his anthropological knowledge prevented him from accepting its racial doctrines. He resigned and was treated with great severity.

(11) Prof. Hertha Spöner is a distinguished experimenter whose name is associated with the analysis of molecular spectra. She is now professor of physics at Duke University, North Carolina.

(12) Prof. Hermann Weyl was called to Göttingen from Zurich in 1930 to succeed the mathematician Prof. Hilbert for whom the famous Mathematical Institute had been built, partly from Rockefeller funds. Prof. Weyl had difficulties because of his wife's Jewish origin and therefore took the opportunity to leave Göttingen when invited to Princeton. Prof. Weyl is known as a philosopher as well as a mathematical physicist.

In estimating the influence of the new régime on German universities several factors have to be considered :

(1) The actual losses can now be estimated with fair accuracy. The number of teachers known to have been displaced from the universities and seats of higher learning is 1,684 ; that is about fifteen per cent of the scholars of Germany. To this must be added a number of quiet resignations and retirements. The true number of displacements is probably not far from 2,000. No institution has suffered more than the University of Göttingen by the loss of distinguished members of its staff ; and of the universities, only Berlin, Frankfurt and Heidelberg have lost as high a percentage.

(2) The intimidation of the staff has a profoundly unsettling effect on their work. Moreover, a stream of edicts—often of a contradictory nature—constantly pours from the Ministry of Education. Merely to master this mass of 'official German' is a considerable task. The excited and threatening political atmosphere in which all officials must live—and German university teachers are now more than ever officials—militates against careful scientific work. Estimates in all departments are unanimous in reporting a rapid and continuous fall in quality. This fall is somewhat masked, partly by the inclusion of foreign contributions, which are eagerly accepted by German scientific journals, and partly by the output of text-books.

(3) The most deadly enemy of German science is the method of recruitment of the junior teaching staff. There is now in operation a complex apparatus that effectively bars studious, scholarly and objectively minded young men from joining the junior staffs of German universities. Beginning in the elementary schools and ending with 'habilitation', there is a whole series of searching tests of the opinions, the political reliability and the military value of every academic aspirant. Two recent orders must suffice to illustrate these points.

The official *Völkische Beobachter* issued a statement on April 5, 1937, that sword practice would shortly become compulsory in all the universities. The statement ends thus :

"Soon, when we hear again the words of command for the duel in the universities and seats of higher learning, and the arms clash again, we shall know that this bodily exercise that belongs equally to the whole nation, is no longer a class distinction as formerly. And everywhere, when a man challenges the offender of his honour, there will no longer be any such thing as academic privilege, but only the manly settling of an offence against honour for every Folk-Comrade trained to arms."

The following decree of the Minister of Education was issued last month in his official journal :

"*Disciplinary Procedure against Student Leaders.* I request the Rectors of the German Universities that in future, *before* initiating disciplinary procedure against students who hold office in the German Students' Federation or in the Nazi Students' Union, they report to me with the presentation of the evidence and await my decision."

Thus not only are students being selected at the universities for qualities irrelevant to their scholarship but also the universities themselves are being deprived of their disciplinary power. The whole organization of the German university from rector to student is on a new basis. Göttingen ceased in 1933 to be a scientific centre. On June 30, visitors to Göttingen will celebrate a unique series of losses of learning, liberty and life.