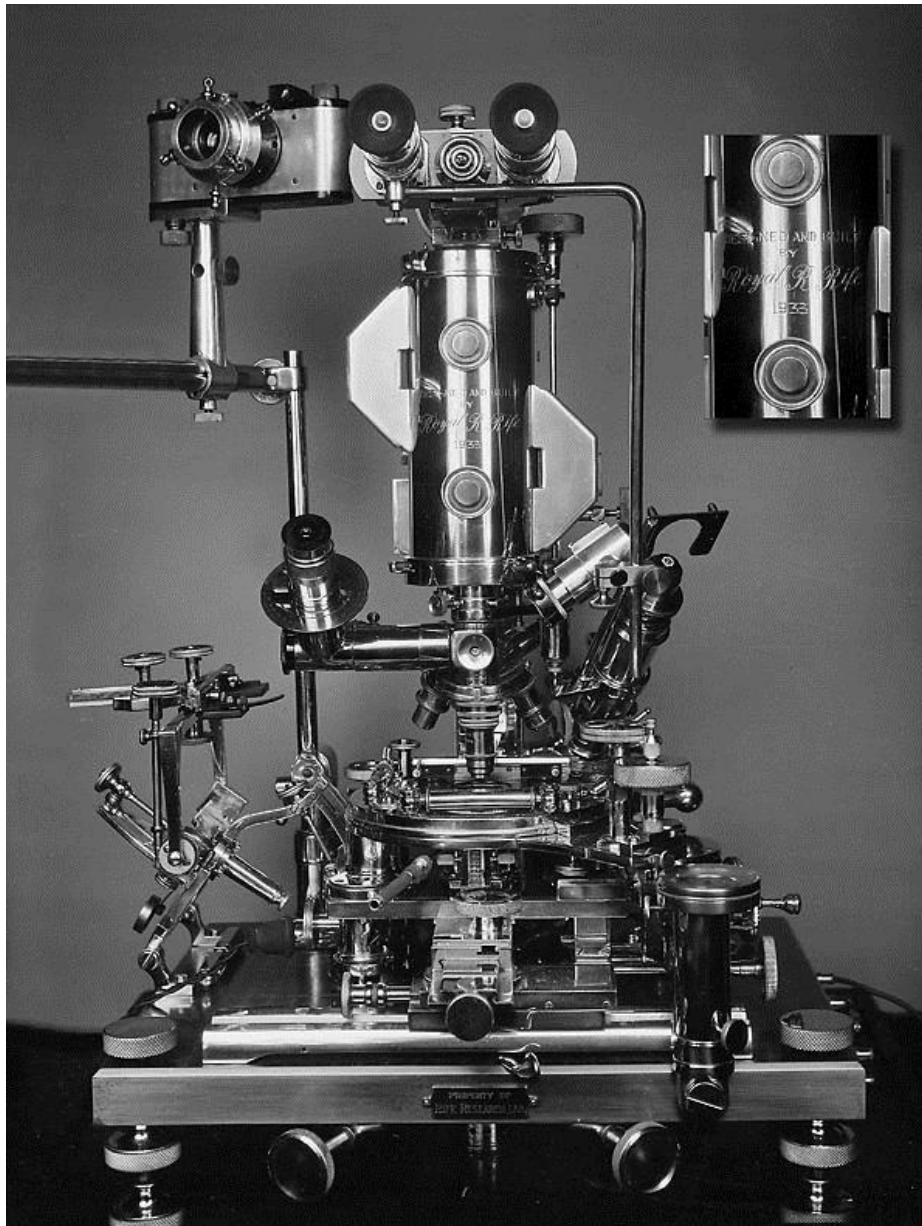


THE RIFE # 5 MICROSCOPE IN THE SCIENCE MUSEUM COLLECTION

Having researched and studied Royal Raymond Rife's work on curing cancer using frequency instruments that he had built, I was also interested in his virus microscopes too.

It is known that Rife built at least five microscopes and the only one still known to be in existence is stored at Blythe House of the London Science Museum. His largest and most complex microscope, the number 3 or "Universal Microscope" is apparently in private ownership in the USA.



The Universal Microscope # 3

The microscope stored in Blythe house is number 5 which belonged to Dr. Gonin. This microscope is not on show to the public and can only be seen by special arrangement. The museum receives about 1- 2 requests a year to see the microscope (this is more than any other individual microscope on store at the Science Museum) and on the 28th April 2012, I visited the museum to see the microscope for myself.



Rife # 5 with the author

Using a Sony Cybershot 12.1 Megapixel digital camera, I was able to take a number of photographs of the microscope. I was also allowed to wear gloves and dismantle the parts that could come apart quite easily. The pictures that I took are shown here in reduced size with permission of the Science Museum picture library.

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The Science Museum received a quantity of papers with the microscope, most of them letters or personal notes made by people possibly still living. Something of the history of the microscope, and a little about Rife and others involved with it can be pieced together from the papers. There are some conflicts in the papers: The most probable version is given below and where there are serious problems this is indicated.

The following report was written by Mr. Neil Brown, Senior Curator – Classical Physics of the London Science Museum about the Rife # 5 microscope:



“The Science Museum possesses a microscope by Royal Raymond Rife. It has the inventory number 1990-667 and was presented to the Science Museum in 1990 by the London School of Hygiene and Tropical Medicine. The School had been given it by the daughter of the late owner, Dr B W Gonin, some fourteen years previously, at a time when there was considerable interest in the Rife instruments, especially in the USA. During those fourteen years the microscope was lodged at the Wellcome Museum of Medical Science in London, where it had been reassembled, inspected and tested, and also seen by a number of people who had enquired about it.

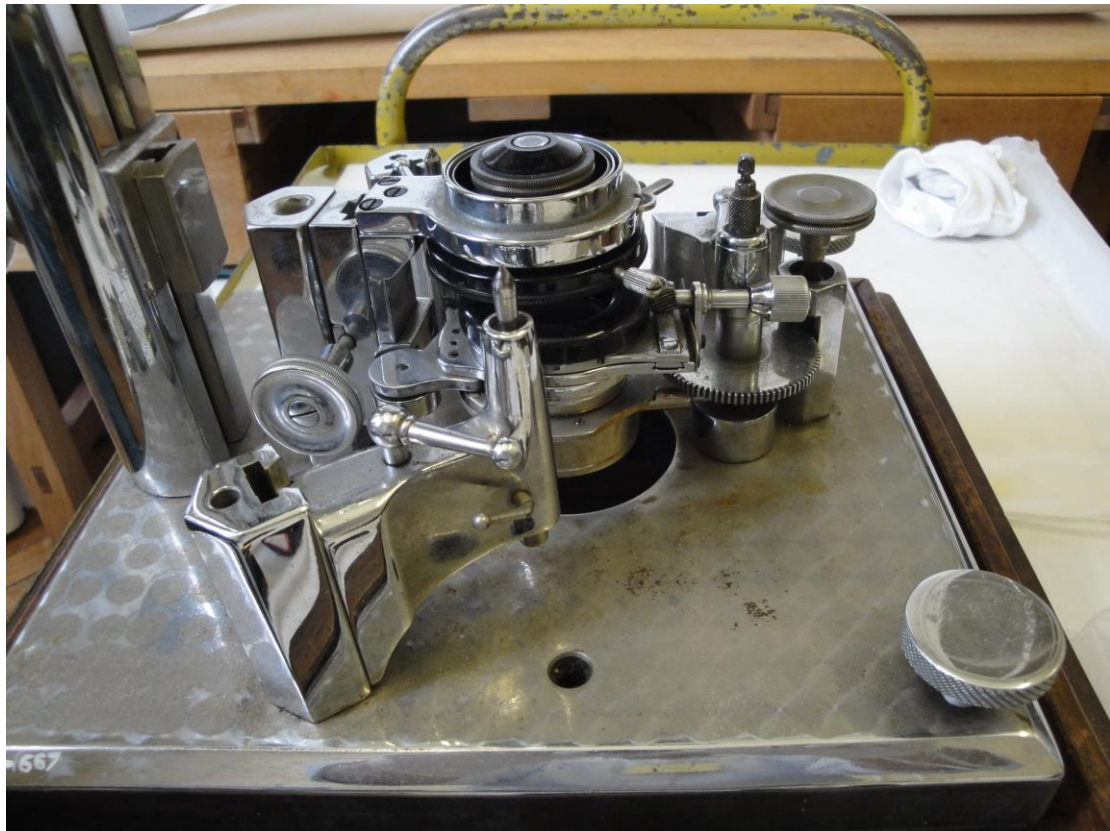
It seems clear the microscope was collected by Dr Gonin during a visit to San Diego in 1956, the year before his death. Dr Gonin apparently always had trouble with the instrument. Some time after the microscope was given to the London School of

Hygiene and Tropical Medicine there was an allegation that Dr Gonin had not bought the instrument but had leased it for a nominal sum, and that the payments due on the lease had not been maintained. His daughter denied this strenuously.



On the basis of this allegation several requests were made in about 1980 to have the microscope returned to the United States. They were refused. The microscope is No 5 of the five instruments made by Rife, and it is engraved on the barrel "designed and built by Royal R. Rife 1938". There is no explanation why a microscope apparently made in 1958 was collected by Dr Gonin in 1956. A note on the file says that "The No. 5 Rife virus microscope was built for an English doctor with quartz optics with a rotatable body similar to the Universal microscope and with an up and down movement on the fine adjustment located below the stage." There is no indication of the source of this note.

This was not the first Rife microscope that Dr Gonin had used, but the details about the previous one are not clear. The earlier microscope was brought to England by a Mr Henry Siner. When he visited England again in 1978 and saw Rife No 5 at the Wellcome Museum Mr Siner said that he had visited England in 1937, and that he had brought a "Universal" microscope. Other references to the visit suggest that it began in 1938, that the microscope was Rife No 4 (the one usually referred to as the Universal was No 3) and that Siner stayed in England until 1940, when he returned to the United States because of the war.



Rife No 4 went back to the United States. The former curator of the Wellcome Museum, who met the people who saw the microscope in the late 1970s, says in more than one place that Siner took it back, at some unspecified date, but there is no record that Siner mentioned this during his visit although he did mention bringing the microscope to Britain. Dr Gonin's daughter said that it was taken back by a Dr Yale, who stayed with Dr Gonin for that purpose, but she gives no date and as Dr Yale is mentioned nowhere else this may be an incorrect recollection. Mr John Crane, who acquired the remnants of Rife's microscopes after Rife's death in the early 1970s, also visited London in 1980 to see the instrument at the Wellcome Museum, and he said that Dr Gonin took it back in 1956 when he exchanged it for Rife No 5.

Dr Gonin's daughter also wrote on one occasion that a bigger and better Rife microscope was alleged to have been built for her father. It is impossible to be clear about what she was saying but it seems that this must have been Rife No 4, and that it had cost him "a King's ransom" - between £2000 and £4000. Dr Gonin claimed that vital parts (possibly lenses) had been withheld. On an earlier occasion the daughter stated that the microscope being built for Dr Gonin was a Universal, the implication apparently being that he never received it. It may be (and this is my speculation) that No 4 was a version of the Universal (No 3) and that possibly it was never received in complete form. What is clear, but as an inference from all the notes rather than being stated categorically, is that Dr Gonin was unable to obtain useful results with either No 4 or No 5. What he was trying to do is not explained.



In the late 1930s Dr Gonin also had some equipment from the Beam Ray which as far as I can discern was promoting a cure for cancer. There is a copy of a letter written by Gonin to Rife in October 1938 - the only document by Gonin on the file. He had just sent Rife \$500 because he did "not want the microscope to be held up by any question of finance." Presumably this was before he received Rife No 4. He says also that the machines from the Beam Ray Co have just arrived and are completely useless as far as he is concerned. They were two months late, which had seriously unsettled his plans. The machines were faulty in construction, they gave out nothing but harmonics. In many cases the wires were not even attached or soldered. He had not been sent the exact frequencies and those that had been sent differed from Rife's. He felt he could not accept any money from anybody for the purpose of paying to the Beam Ray Co until the machines carried out the work for which they had been intended. He had

given notice to the Beam Ray Co that he would not carry out the terms of the contract because of their serious delays. He finishes by asking whether Rife had any news about the virus of arthritis, or of measles and its frequencies.



Dr Gonin's daughter also mentions a "Ray" machine. A Mr Hodder, an uninvited visitor, came to the house with the intention of removing the machine, presumably back to the United States. When his request was refused he began to smash the machine. This was after Dr Gonin's death. The daughter says that it was an electronic cancer screening machine which her father had bought (and found utterly useless) in the years directly after the war, but I suspect she is wrong about this date and that it was just before the war. Elsewhere she describes it as a "Ray" machine which was supposed to heal "everything from warts to a world-war." There was still some of this

equipment at Dr Gonin's home at the time his daughter handed over the microscope to the London School of Hygiene and Tropical Medicine. Two strange glass bulbs from this equipment survived and are also in the Science Museum.



Most of the background information about the persons involved in the Rife microscope saga comes from comments made by a Professor Hubbard when he visited the Wellcome Museum to see the microscope in 1978. Hubbard was Professor of Pathology at the State University of New York in Buffalo, and he had been interested in Rife and his microscopes since 1947. It is worth quoting extensively from the notes of his comments.

Royal Raymond Rife was born in America but went to Germany in the early 20th

century, where he worked on optics and the making of lenses and microscopes for either Zeiss or Leitz. On the outbreak of World War One he returned to the United States and was believed to have been employed by the Government. He was reckoned by those who knew him to be a genius. He was a fanatical worker who could cut, grind and polish a lens in a single morning. He began building microscopes in the mid-1920s, and it seems that he built five altogether. He never sold any, but nevertheless became an extremely rich man, owning two Rolls Royce cars and a yacht. Hubbard possessed photographs of Rife 1 and Rife 2. The first was mounted horizontally on an ordinary optical bench, while the second appeared to be an upright version of the first. Hubbard was adamant that neither of these microscopes were still in existence, as they had been extensively cannibalised during the construction of later models. Rife's masterpiece was No 3, known as the Universal, built in 1933. After that he produced Rife 4 and Rife 5, which was completed in 1938. Hubbard positively identified the microscope then housed at the Wellcome Museum as Rife 5.



At some time during the 1930s Rife became a member, possibly a Board member, of the Beam Ray Company, which manufactured equipment to cure cancer. The extraordinary electrical bulbs seen at Dr Gonin's home were part of this equipment, evidently purchased by Dr Gonin. The Beam Ray Company became involved in a long, costly and protracted lawsuit, and during this time Hubbard said that Rife found it impossible to sleep. He was a non-drinker, but was advised by his doctor to take brandy as a night-cap. After building the fifth microscope he went into a slow alcoholic decline. In his heyday many academics visited Rife, but these visits began to tail off as his powers declined. [According to a note elsewhere in the file Rife died in 1974.]

Mr Siner worked closely with Rife in a technical capacity during the 1930s. He brought a Rife microscope (not Rife 5) to England in 1938, and stayed in this country

for three years, returning to the United States in 1940 owing to World War Two. According to Hubbard, Siner was reckoned to be the only man alive who could assemble a Rife microscope, and the San Diego Underwater Corporation were seeking his services. This expertise of Siner was not borne out during his visit to the Wellcome Museum. On that occasion he did not demonstrate much knowledge, although he insisted that the microscope at the Wellcome Museum was not the one he brought over. [A note elsewhere records that in 1976 the Sea Equipment Advancement Corporation was interested in building an updated Rife microscope, and in 1981 someone from an American company called Oceaneering asked to borrow the microscope in London, but the request was not pursued.]



Hubbard also mentioned an Englishman called Cullen, who was living in the United States, at the age of about 86. He had given a lot of information to Hubbard about the microscopes as he had worked with Rife in the United States from about 1914 onwards. [Cullen is not mentioned anywhere else in the papers.]



John F Crane, who was still alive, worked as a mechanic with Rife from the early days of the microscopes. He became involved in the cancer cure business and was finally prosecuted for fraud with two others, and a prison sentence of three years was passed on him. According to Hubbard, Crane was almost illiterate, he had no scientific ideas and very little understanding of optics. The importance of Crane was that he possessed Rife 3 (the Universal) and also Rife 4. No-one knew how he came into the possession of these microscopes but he would not lend the Universal to anyone for an indemnity of less than a quarter of a million dollars. Crane had written a book about the microscopes which was little more than a hotch-potch of anecdote and exaggeration. Hubbard showed a copy of this book. Crane was not rich, and at the time was in poor straits.



The curator of the Wellcome Museum, who wrote the notes of the conversation with Hubbard, added comments of his own. Hubbard obviously understood optics well and was technically skilled. He had dissected Rife 5 at great speed, dictating as he did so, and paying special attention to the system of condensers which lay below the stage. His view was that the microscope was very like Rife 4 but not identical with it. Hubbard was not a very good microbiologist, and could not say what the maximum performance of Rife 5 would be. Hubbard badly wanted to obtain Rife 3 from Crane. Hubbard also believed there might be another Universal which he described as "Rife 3a".

The position with regard to all these microscopes was incredibly complex and it seemed that Crane was in a very commanding position with regard to them. He [the

curator] wondered whether Rife was in some way indebted to Crane, and hence that Crane had leant on Rife very heavily after his release.



In his will Rife evidently did not mention his microscopes so that their ownership was perhaps still in dispute. Hubbard maintained that Gonin never fully paid for the microscope which Siner brought over, but Gonin's daughter maintained that Siner took away a microscope while he was in England.

Perhaps the most significant part of the story [in the opinion of the curator] was that neither here nor in the United States was there known to be a single extant microscopical preparation worked on by Rife, Gonin or anyone else. With the possible exception of one picture of a phage there is no proof that any photomicrographs were ever taken with any of the Rife microscopes.

As well as talking about giving a lot of information about Rife and those involved with him Hubbard left in London copies of some of his extensive correspondence about the Rife microscope. In a letter to Crane he stated that his objective was to obtain a satisfactory technical explanation for the phenomena which Rife observed. In the same letter he said he did not believe that Rife made a complete secret of his microscope system but that Rife gave ample opportunity to several people to examine the microscopes thoroughly. The problem was that they did not select and prepare the specimens with adequate care, and that they did not operate the instrument properly. Hubbard believed that Rife had somehow managed to combine fluorescence, polarization and interference microscopy, but he does not attempt to explain how this might have been done.

Others, of course, disagreed. One American microscope manufacturer which Hubbard contacted, Bausch and Lomb, said that they had tried to see the Rife microscope but

there was so much secrecy that few people, and most of them non-microscopists, had been able to get to it. The few microscopists who had been able to see it were not well-versed in microscope theory and could, therefore, give no worthwhile opinion of its virtue. The company had never been able to get evidence to substantiate announcements that the instrument exceeded the limits of resolution which theory indicated. The Spencer Lens Company, later taken over by the American Optical company, had tested a Rife microscope, in 1936 according to Hubbard. Its performance had been no better than an ordinary instrument of similar numerical aperture, though the writer conceded that as Rife never gave a scientific explanation of his instrument it was difficult to know whether or not he accidentally ran on to some favourable conditions.



There is little in the papers about the claimed performance of the Rife microscope, but Hubbard does say something about it in a letter to a professor in Britain. Hubbard refers to about the only detailed contemporary paper about the Rife microscope, which appeared in the Journal of the Franklin Institute, vol 237, Feb 1944, pp 103-130, and also in the Annual Report of the Board of Regents of the Smithsonian Institution, 1944, pp 193-219, entitled "The New Microscopes" and written by R E Seidel and M E Winters. [The paper deals with a lot more than just the Rife microscope: the text of the two versions seems to be the same but the illustrations and references differ.] There were some photomicrographs printed with this paper, and Hubbard claimed to have seen the original negatives of these images when he had visited Crane. He reckoned they showed features about 10 nanometres in size. (Barer had already pointed out that the limit of resolution of a light microscope was reckoned to be about 200 nanometres.) Crane compared these images very favourably with electron micrographs made 20 years later, using specimen preparation techniques which had not been available at the earlier date. Barer's letter, which was an answer to a query from a journalist called Christopher Bird, was sceptical: he was not closing his mind to the possibility that Rife had come across an interesting and useful optical phenomenon but could not comment without much more information.

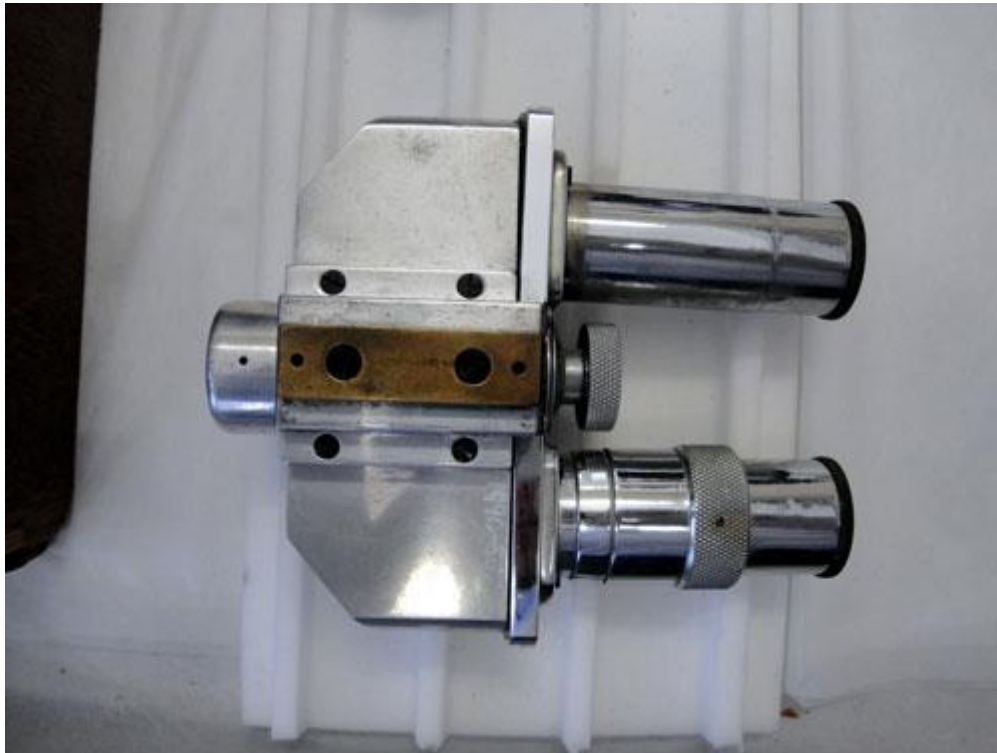


He did point out that it was sometimes possible to detect the presence of detail smaller than the resolution limit, such as viruses, by techniques such as phase contrast, but not to resolve those details and describe their true shape.



There are a few reference to the use of the Rife microscope by a Professor A I Kendall, the most significant being a paper called "Observations with the Rife microscope of filter-passing forms of microorganisms" written by E C Rosenow and published in Science, vol 76, 26 August 1932, pages 192-19, and a paper by Kendall and Rife in California and Western Medicine, vol 35, December 1931, pp 409-111 "Observations on Bacillus Typhosus in Its Filterable State". Both the idea of the filter-passing organisms and the high magnification claimed (8000 times) would, no doubt, have been considered controversial by others. Although there is an implication in

various places in the papers now at the Science Museum that the Rife microscope was useful for studying viruses and cancer-causing organisms there is nothing clearly describing its use in this way.



Rife No 5 was tested in 1978 while it was at the Wellcome Museum, by a Professor of Physics from Imperial College in London. Practically the whole instrument was dismantled. There seemed nothing particularly remarkable about it except that it had been constructed in such a way as to make the work of microscopy tedious and cumbersome, particularly in respect of focussing the instrument. Using all the original optics it was quite impossible to obtain an image, but using a light-source, eyepiece and objective from a Reichart microscope, a very imperfect image of leukaemic blood cells was finally obtained. The image was about 30% larger than would have been expected with the use of a x6 objective and a x40 eyepiece, and this was no doubt due to the prismatic arrangement in the barrel of the microscope. The resolution, however, was extremely poor.

It was concluded that it would have been impossible to produce the known photomicrographs with this instrument and it became clear that this explained the late Dr Gonin's complaint that he could obtain no results. One of the original photographs labelled "virus of cancer" was identified as a well-known artifact of optical systems known as "coma". It is merely a photographic rendering of an anomaly produced by defects in the optical system.

The latest document on the file, written not earlier than 1990, is a typescript account by Professor Ronald R Cowden, Emeritus Professor of Biophysics and the James H Quillen College of Medicine at East Tennessee State University. About three years prior to writing he had been contacted writing to act as a consultant on the possibility of "restoring" the Rife Universal microscope, then owned by Rife Laboratories Inc, of

which Mr Barry Lynes of Mission Viejo, California, was the President. Professor Cowden saw both the Universal microscope, in August 1988, and Rife No 5 at the Wellcome Museum, in April 1990.



Mr Lynes had had to undertake legal proceedings to obtain the microscope from Crane, who had removed it from Rife's laboratory after Rife's death. After spending three years in prison for offering a bogus cancer cure, Crane had attempted to market what he claimed to be the Rife technology, and he was still living in Southern California or Arizona and offering a "super resolution" microscope for sale. Lynes was a crusading journalist and publisher who felt strongly the "Cancer Establishment" was wilfully disregarding promising approaches to the cure of cancer to safeguard their own economic well-being. Lynes had decided that Rife had had the most promising approach, and had been destroyed by the establishment. At the time Cowden saw, it the Universal microscope was in the laboratory of Dr Marcel Voegl, in the San Francisco Bay area, but it had since been moved to an institute in the Topeka, Kansas, area following a dispute between Lynes and Voegl.

The Universal microscope appeared to be a rather extensively modified American Optical research microscope of about 1932 vintage. It used a mercury-arc light source, and there was a pair of slanted round quartz prisms positioned over the light port, below the condenser. The condenser itself was a standard flint glass Abbe condenser of the period. The stage was a complex rotating circular mechanical stage, similar to the designs used on polarizing microscopes of the day. The nosepiece was centreable, indeed almost every part had some sort of minute mechanical adjustment that would allow either tilting, rotation, centring or minute movement up and down. Indeed the whole instrument was a mechanical nightmare, filled with little beautifully machined circa late-1920s or early-1930s screws, worm gears etc. The objectives were conventional flint glass objectives of American Optical and E Leitz Wetzlar

(Germany) manufacture. There is no indication that these were either strain-free or contained special correction. There were no special inserts above the objectives, and the light path led directly into a prism chase inset into a tube about 30 cm long that contained the prism chase and a central element that had been vandalised out of the instrument. When this element was removed was the subject of considerable conjecture, and its contents even more. There was talk that it had been removed in the late 1940s (1948-49), and there was talk that it had been done while the instrument was in the hands of Mr Crane, who presumably sabotaged a critical element to prevent the intact instrument falling into the hands of hostile elements. We simply do not know. Cowden comments, we simply do not know. Above the prism chase was a right-angle prism and a goniometer mounting that contained a polarising prism, then at a right angle to the prism chase tube (which was between 7 and 8 cm in diameter and made of thin-walled brass) there was a standard American Optical straight binocular tube. It was not configured as a trinocular head, and presumably it had to be reconfigured for photography. How was not clear. Some tests were conducted with the instrument. Clearly, above the prism set which was above the light source port it transmitted only in the visible range with a sharp cut-off at about 360 nanometres.



The Rife Universal microscope was quite similar in configuration to the instrument in London [Rife 5], but was larger and had more screws and knobs on it. It gave the impression of complexity for the sake of complexity, that Rife just loved making all those things. Functionally, the two were comparable. Cowden tended to agree with colleagues in the United States who pronounced it a flawed design at best.

Cowden felt that Rife was a strange man of unusual background: he had worked for a few years before World War One in a German optics firm (Zeiss or Leitz). Later he had become a mechanic and driver to a Cleveland-based ball-bearing manufacturer who appears to have funded his research. He also seems to have won over the support

of at least two individuals with acceptable credentials, a microbiologist at Northwestern University in Evanston, Illinois, and a physician in the Los Angeles area. The microbiologist was interested in documenting "pleomorphism" (but in a meaning of the work different from the current one). The microbiologist and his associates were trying to disprove the Pasteur "germ theory", that a specific bug is responsible for specific diseases. Their idea was that, like matter, bacteria changed form: at one time a bacillus is seen, next a virus. The virus gets very nasty in cancer and either causes or accompanies it. The Los Angeles physician was treating cancer with the "magic black box", and this drew the ire of the American Medical Association and led to the legal cases that destroyed Rife as a player.



Cowden mentions very briefly some other who had experimented with super-resolution microscopes. He ends by asking whether this strange man, Rife, could have muddled into something far before its time in what might be called a "low-tech" manifestation. He concedes it is possible, but not very probably. He suspected that Rife microscopes would remain a historical footnote in the history of light microscopy, and offer one of the interesting mysteries of that usually tedious business. Cowden finishes by recommending the following recent books to anyone interested in Rife.

The Cancer Cure That Worked, by Barry Lynes, published by Marcus Books, Toronto, Canada, in 1987.

The Healing of Cancer, by Barry Lynes, published by Marcus Books, Queensville, Ontario, Canada, in 1989

The Galileo of the Microscope, by Christopher Bird, published by La Presses de l'Université de la Personne Inc, St Lambert, P.Q., Canada.

It is obviously possible to see links between what Cowden wrote and other

information about Rife. On 10 September 1929 Rife had been issued American patent 1,727,618 for a microscope lamp, and it may be that this is the type of light source that Cowden saw on the Universal microscope. The "magic black box" for treating cancer is presumably the beam ray equipment."

C N Brown
7 April 1993