CHAPTER - 6, PART - I
GENESIS, GROWTH AND LATEST DEVELOPMENT OF TTB IN THE WORLD AS WELL AS IN INDIA :

6.1 Genesis, growth and latest development of TTB in the world :

"The birth of first 'test tube baby' was the successful outcome of a long period of research by STEPTOE and EDWARDS".¹

The genesis of TTB in the world is quite recent and relates to the period of late 70's (Seventies) of this the 20th (Twentieth) Century. Dr Patrick Steptoe accompanied by Prof. Robert Edwards of England was the first person to achieve this feat. It was on 10th day of November, 1977, when for the first time in the history of human being a lady named "Lesley Brown", then aged about 31 years wife of Gilbert Brown of U.K. was externally conceived by the technique of IVF ET who successfully delivered "Louise Brown", a lass weighing 5 lbs. 12 Oz., i.e. 2 Kgs. 600 Gms., as the first test tube baby of the world; at 11.47 p.m. on 25 July 1978 in Oldham General Hospital, Lancashire in England. Since the time of delivery happens to be 11.47 p.m., i.e. 2347 hrs. of 25 July 1978, so some of the media have reported the date of birth of the first test tube baby as 26 July 1978; probably because the wide publicity in the leading news papers was reflected in the morning of 26 July 1978. However the exact time and date of delivery when the first test tube baby was born has been recorded in the Guinness Books of Records² which is reproduced herein below :-

¹ Reference: "The Birth of the First Test Tube Baby" by Dr. Patrick Steptoe and Prof. Robert Edwards.
² Reference: Guinness World Records.
"Test tube baby Earliest

"Louise Brown (5 lb 12 oz 2,6 kg) was delivered by Caesarian section from Lesley Brown, 31, in Oldham General Hospital, Lancashire, at 11.47 p.m. on 25 July 1978. She was externally conceived on 10 Nov. 1977." and

"Test-tube baby : Lesley Brown, 31, gave birth by Caesarean section to Louise 2.6 kg 5 lb 12 oz in Oldham General Hospital, Lancs, at 11.47 p.m. on 25 July 1978. Louise was externally conceived on 10 Nov. 1977."4

Some reports of the other media are as follows :-

"First Test Tube Baby

Louise Brown, the world's first test-tube baby, was born in a hospital in Manchester, England, on July 26th. The embryo had been implanted in her mother's womb after \textit{in vitro} fertilization in a pioneering operation by Dr Patrick Steptoe."5

"Test Tube Babies

"World's first Test Tube Baby, Louise Joy Brown, is twelve years old now. Born to Lesley and Gilbert Brown of U.K. on July 25, 1978, the baby girl soon became the darling of millions, opening new hope for couples suffering from infertility around the world.

Birth of Louise was the successful culmination of the bold and painstaking experiments of Robert Edwards and Patrick Steptoe - a Scientist and Doctor team in close collaboration."6
"World-wide. While the ethical debate continues, Medical world has been reporting test tube births world-wide, almost routinely and treatment Clinics sprung up in many countries in the East and the West.

There have been many pairs of test tube twins and also test tube triplets. Louise Brown herself got a test tube baby sister, Natalie Jane, born in 1982.

The first test tube quadruplets were born in Australia in January 1984 and Belgium reported another one in July 1985.

Brussels, St. Peter Hospital said that three embryos had been implanted into the mother's womb in the hope that at least one would develop. But all the three succeeded and one even separated into twins.

In Melbourne Hospital, quadruplets, all boys, were born to a woman, who had been trying for ten years to have a child. The boy were named Sam, Christopher, Ben and Brett."

"First Success. The difficulty was that the fertilised ovum, even if planted in the womb of the same woman, will not stay there till the end of the gestation period. It will be thrown out, that is miscarried.

The Scientist-Doctor team at Oldham, U.K., succeeded against these odds in 1978 and since then hundreds of babies have born of the 'in vitro fertilisation' — the scientific name for the technique. The term 'in vitro' means 'in glass', but in America's Norfolk Clinic, fertilisation actually takes place in plastic.

The husband's semen is dropped into the plastic culture dishes — not test
tube as in some countries — where the individual eggs have been incubating. Thus the process of inter-course between the woman's egg and male semen takes place in plastic dishes. Some couples later claim to possess these plastic dishes for sentimental reasons."8

"The story of this chapter starts from the efforts of Doctor Patitr Steptoe. First of all in the world, the attention of Doctor Patrit Steptoc was drawn towards the childless couples. He started pondering upon as to how to give relief to the couples facing social taunts and tease, neglect in the family and being fixed in whirlpool of depression. Then the idea of possibilities through test tube baby clicked and fixed in his mind. He devoted for research. In 1978 he succeeded in bringing a human baby on this earth through the technique of In vitro Fertilisation Embryo Transfer (IVF ET). In this manner the existence of first test tube baby of the world Louise Brown came into lime light."9

From the above; it is, therefore, crystal clear that the genesis of the TTB in the world originated with effect from the 10th day of November, 1977 in U.K. when Dr Patrick Steptoe succeeded in externally conceiving Lesley Brown by the technique of in vitro fertilisation and embryo transfer.

However, the idea of in vitro fertilization relates to the discovery of artificial insemination which goes back to 18th (Eighteenth) Century, when in the year 1785 the first artificial insemination was performed on animals by an Italian Churchman Abbe Lazarro Spallanzini. This discovery of artificial insemination has its roots in the 17th Century when in the year 1677 A.D. the Spermatozoa were discovered for the first time. Thereafter the first artificial insemination of human beings by using the sperm of patient's husband was
performed in U.S.A. by Marion Sims in the year 1866; and the first artificial insemination on human beings by using the 'donor' sperm was also performed in U.S.A. by Robert Dickinson in the 1890s; it is clear from the following passage.

"From time immemorial, sperm has been synonymous with human fertility, "Sperma" in Greek means seed. Folklore, ritual, art and almost all cultures elevated the phallus and its generative fluids to religious rites.

Spermatozoa were discovered in 1677 A.D. The discovery of the art of artificial insemination took place more than a hundred years later and was first performed on animals in 1785 by an Italian Churchman Abbe Lazarro Spallanzini. Spallanzini injected dog sperm into the vagina of a bitch, who, 63 days later gave birth to one female and two male puppies. This "achievement" raised mixed reactions. Many were concerned with the ethics of it, especially if this technique were to be tried on humans. The French biologists, Charles Bonnet, wrote to Spallanzini expressing his anxiety over the possible consequences for the whole of mankind. Within a few years, the English Surgeon, John Hunter, artificially impregnated the wife of a merchant with her husband's sperm.

The first artificial insemination was performed in the USA by Marion Sims in 1866. He went on to perform 55 artificial inseminations on 6 women, using the sperm of the patients' husbands. Finally overwhelmed by religious and ethical considerations, he abandoned artificial insemination altogether, terming it immoral.

Robert Dickinson of the USA pioneered the technique of artificial insemination in the 1890s using non-husband 'donor' sperm. This, of course,
caused an uproar. The new practice was called a technological form of adultery and Dickinson was castigated by many. His technique later acquired the name 'donor insemination' (DI). In 1953, frozen donor sperm was used for the first time.

In more recent times, physicians have been screening donors for desirable traits, be it race, eye and hair colour, height, weight, body type, intelligence quotient etc., in an attempt to meet the customers' demands. One can even choose the sex of a DI child, thanks to the technique of 'sperm separation'. Physicians are expected to further develop genetic screening techniques to detect a number of genetic traits and abnormalities present in the sperm.  

According to another media, "No New Idea. Test tube babies or the production of babies in the laboratory is not a new idea. What is involved here is an artificial method of fertilisation. The ovum of a woman is taken out and is fertilised by the sperm of a male in a test tube. The fertilised ovum is then implanted into the womb of the woman, who supplied the ovum. The fertilised egg attaches itself to the womb and completes its period of gestation within the womb in the normal manner and is delivered in the normal course.

Here, there is a very little interference with the natural process ... the only difference being that the ovum is fertilised outside the womb (in a test tube) instead of in the fallopian tube of the woman concerned. Socially also, there is nothing reprehensible in this sort of reproduction, so long as the ovum is fertilised by the sperm of the husband."  

According to Warnock Report, "The first formal public comment on AID in this country came with the publication of the Archbishop of Canterbury's report
on artificial insemination in 1948. The Archbishop himself was highly critical of the practice of AID, though not of AIH, recommending that it should be made a criminal offence. However no action was taken in this direction. In 1960 the Feversham Committee, set up by the Government to consider AI, reported; it considered that AIH was an acceptable form of treatment for some couples, but believed that the majority within both society and the medical profession was opposed to the practice of AID. It concluded that AID was an undesirable practice, strongly to be discouraged. Since 1960 the practice of AID has continued to grow. In 1968, the then Minister for Health decided that AIH and AID should be available within the NHS if recommended on medical grounds. The increase in requests for information about AID and where it was provided led the British Medical Association to set up a panel in 1971 under the chairmanship of Sir John Peel to look into the medical aspects of human artificial insemination. This panel reported in 1973 and recommended that, for the small proportion of couples for whom AID would be appropriate, the practice should be available within the NHS at accredited centres. No action was taken to establish a system of accreditation".13

The conception and pregnancy in case of first TTB of the world was achieved by adopting the method of in vitro fertilization and transferring the Embryo in the womb after having it developed in a test tube.14 This technique was welcomed all over the world and since then the infertile couples being so attracted have been keenly interested in begetting babies by artificial means and the demand for TTB has continuously been enhancing significantly among the infertile couples all over the world.15
Many of the Fertility clinics all over the world were equally attracted and keen to land in this field so as to contribute their efforts for the growth of the concept of TTB. Several IVF fertility clinics emerged and jumped into the fray; afterall it has been a profitable business too. The additional techniques were researched, investigated and developed to remove infertility both female as well as male.

Gradually, as discussed in Chapter-5 hereinbefore, several new modes and methods of achieving conception and pregnancy by artificial means have been developed all over the world and at present; in the majority of the world countries, the TTBs are being produced. The latest modes of conception; with donor sperm, donor eggs, donor embryos and the concept and arrangement of surrogacy as well as frozen sperm, eggs and embryos; have widened the scope and prospect of the concept of TTB all over the world. Many countries have developed the concept of TTB with latest technology; prominent inter-alia, being United Kingdom (UK), United States of America (USA), Union of Soviet Socialist Republic (USSR), Japan, Australia, Belgium, Germany, France, Canada, Sweden, Switzerland, Norway, South Africa, Israel, Portugal, Spain, Netherlands, Bulgaria, Hungary, Denmark, Newzealand, Libyan Arab Jamanhiriye, China, Hongkong, and even India.

In Australia the first TTB with frozen embryo was procreated on 24th March, 1984; till June, 1988 more than 200 TTBs have been produced and in UK it is more than 100; and the number of TTBs produced in more than thirty countries figured at more than 3500. In the year 1990, there was a gathering of 600 TTBs at the IVF clinic at Bournhall in England to mark more than a decade old technique pioneered by Steptoe and Edwards which has been reported
in Manorama Year Book 1991 as follows :-

"Louise Brown, hale and healthy, was among the 600 children who gathered at the *in vitro* fertilization clinic at Bournhall, north east of London to mark more than a decade old technique pioneered by Prof. Robert Edwards, and the late Dr. Patrick Steptoe".19

As per Warnock Report, "In the decade since the Peel panel reported the trend of increasing acceptability and demand for AID has continued. In 1982, the latest year for which figures are available, the Royal College of Obstetricians and Gynaecologists knew of over 1000 pregnancies conceived and at least 780 live births following AID in this country. This is undoubtedly an under-estimate. But we were not able to find detailed information about AID services. NHS centres are not required to identify themselves in any of the returns that health authorities make to the Health Departments, though there are several centres where AID is provided under NHS auspices which are well established and whose existence is widely known. In addition there is a number of private centres particularly in London, providing AID and the British Pregnancy Advisory Service offers AID at some of its pregnancy advice bureaux, located throughout the country."20

And further, as viewed by M. Habibulla, "The sperm business has kept pace with technology. About 200,000 women in the USA alone are artificially inseminated each year. It is estimated that more then 65,000 babies are born annually this way. Half of the artificially inseminated women received sperm from anonymous donors"21 and still further according to Leon Speroff, Robert H. Glass and Nathan G. Kase, "A sharp escalation of demand for infertility
services began in 1981"; they further say, "From approximately 600,000 visits in 1968, the total increased to nearly 1 million in the early 70's, then in the early 80's, the total went over 2 million". Although the exact data is not available yet the number of TTBs, produced by now is estimated in millions, keeping in view the expert opinions referred to hereinabove.

This tendency of begetting TTBs is increasing day by day. The success rate of TTB is showing upward trend. The latest technology of ultrasound and sonography system providing perfect guidance to achieve artificial conception had added perfection to the system of begetting TTB.

During next few decades, it is therefore presumed that the success rate of begetting TTBs are expected to rise to its peak and the time would come when there will be 70 to 80% success in achieving conception for TTBs without involving any third party donor if not 100%. Then hardly any infertile couple would remain without baby. But with further development of donor system and surrogacy arrangement the possibility of 100% success rate of begetting TTB cannot be ruled out and in that case every infertile couple would have with them a TTB. In fact, Dr Geeta Pandya, a gynaecologist and test tube baby expert has already claimed 85 per cent success in the concept of Gender Selection; as Sumit Ghoshal points out, "Dr Geeta Pandya, gynaecologists and test tube baby expert who will be presenting her analysis of 1,000 couples who have been through in vitro fertilization at the Scientific Meeting of the Royal College of Obstetrics and Gynaecology, Hong Kong, this September claims a success rate of 85 per cent in the technique which is becoming increasingly popular among sterile couples the world over."
The latest development of the concept of TTB in the world is quite impressive as well as alarming. Impressive because it has brought sigh of relief, a boon, to the infertile world. It has now become part and parcel of the infertile couples and is growing very fast. There are several TTB boomers around the world. Alarming because of its complications and implications. In fact it has attracted the attention of many concerns who apprehend complications with regard to the status and future of TTBs; some of them have expressed this trend as "the terrible twenties (Open letter to the baby boomers from the next generation)"; and "If it feels good, it must be bad (baby boomers and the New Puritanism)." But there seems to be no effect on the TTB boomers and the infertile people as well as the IVF clinics are extremely busy in producing and begetting TTBs. Hence the TTB boom is the result of twentieth century.

6.2 Genesis, growth and latest development of test tube baby in India :-

The genesis of the concept of TTB in India is very recent and can be traced out in the 80's (Eighties) of this the 20th (Twentieth) Century having just 11.5 (Eleven and half) years of age when the first test tube baby 'Indira Chawda', born on 6th August 1986 at King Edward Memorial Hospital Bombay (India). It was the outcome of continuous struggle and sincere efforts of Dr Indira Hinduja of the said Hospital by means of IVF ET (in vitro fertilization and embryo transfer). Smt. Mani Chawda, then 24 years, an employee of 'Saint Thomas High School', performing the cleaning job there and resident of Gore Gaon, (Maharashtra) is the mother and Sri Shyamji Chawda, then 25 years and an employee of Bombay Municipal Corporation, Bombay is the father of the first Indian TTB. They had been married to each other for the last about 5 years from then but due to damage of her one fallopian tube in a surgical operation and blockage of another, Smti
Mani Chawda could not conceive by natural means of coitus. The couple was disappointed as they had a desire to be blessed with a child. Therefore, immediately after 2 (two) years of their marriage without child, they started visiting hospitals. First of all, Smti Mani Chawda got herself medically examined in Bombay at 'Kapur Hospital' and then at 'Desai Hospital' where she had undergone a minor operation but all in vain. Thereafter, the doctors of 'Desai Hospital' advised her to go to 'K.E.M. Hospital' and consult Dr Indira Hinduja which she did. In the month of November 1985, Mani was medically examined and at the appropriate time of ovulation on 28th Nov 1985, eight eggs were taken out within 20 minutes, placed in some specific liquid meant for the purpose and kept in the incubator for seven hours under specific temperature. Then the semen of her husband Shyamji was obtained, kept for half an hour in the incubator to activate the sperm. Thereafter with the help of special microscopic instrument one drop of sperm was poured on the petri-dish containing eggs and left for 48 hours in the incubator for fertilization and forming embryo. Thereafter six out of the eight eggs were found fertilized and developed as embryos. These embryos were then kept in some other liquid for further developing and thereafter all the six embryos were placed in uterus with the help of catheter. It was on 30 November 1985 and she was told to go home to come after one month. Thereafter periodic medical check-ups were done till the delivery. Thus Mani got the result 'the first TTB in India' on 6th August 1986; weighing 2 kgs 400 gms through caesarean delivery. She was so overjoyed that the tears of joy rolled down from her eyes at the birth of this TTB, a female baby, who was named as "Indira Chawda" of which 'Indira' has been picked up from the name of Dr Indira Hinduja as a mark of respect to her. Dr Indira Hinduja further revealed that similarly Smti Nirupama, wife of Dr Prakash, resident of district Isan (Karnataka) who was subsequently
shifted to Bangalore, gave birth to TTB on 14th June, 1986. In this case, delivery was effected through caesarean at 'Saint Filoma Hospital' in Bombay but in that case also the insemination was done abroad at 'Bourn Hospital' in England at the cost of the couple amounting to Rs. 1,70,00/- (Rupees One lakh seventy thousand). The conception was achieved from a frozen embryo. The couple has preserved 2 more embryos at Bourn Hospital under safe custody for future conception to beget TTB".27

Subsequently this baby has been named as Harsha Chawda and the full name of her mother is reported to be Maniben Chawda, which is clear from the following extract :-

"India’s first test tube baby, Harsha Chawda, was born at king Edward Memorial Hospital at Parel in Bombay on August 6, 1986. Harsha, born to the Chawdas after five years of Childless marriage, was delivered by a team of KEM doctors led by Dr Indira Hinduja.

Harsha, the minion of thousands, now attends junior K G classes at the Bombay Cambridge School at Andheri. She is a bright girl according to her mother Maniben and father Shyamji a class IV employee of the Municipal Corporation.

Maniben could not deliver a baby normally as one of her fallopian tubes (which convey the egg from the ovaries to the uterus) had been removed in an earlier operation while the other was blocked."28

After 2 days of the birth of this first Indian TTB, Dr Indira Hinduja inseminated 2 (two) more women by first time adopting the method of GIFT
Dr Indira Hinduja revealed that some people considered 'Durga Agarwal', a TTB born in 1978, in Calcutta as the first TTB of India; but, in fact, that is not so because neither there was any news or publicity of this TTB nor was there any mention or evidence about the said TTB. Moreover, the insemination in that case was done abroad. Thereafter for want of evidence the same was not recognised. Likewise in case of TTB born at Saint Filomma Hospital on 14 June 1986 the embryo was obtained and implanted in England. But in case of "Indira Chawda" there is crystal clear evidence that from the very beginning of its initial stage of considering the case for IVF and medical check up of Smti Mani Chawda till delivery, i.e. from the very in vitro fertilization till birth every thing was done in India at 'K. E. M. Hospital', Bombay, (Maharashtra).

According to Sumit Ghosal, "The first Test Tube Baby was born in India with the help of Dr Indira Hinduja and Dr T. C. Anand".

Durga Agarwal was the result of sincere efforts of Dr Subhash Mukherjee who committed suicide as this case was medically contested.

The second TTB in India was also born in Bombay by the sincere efforts of Dr S. Desai of 'George Hospital' and Dr Mehroo Hansotia of 'Wadia Hospital'. The third TTB was born at a hospital in Calcutta and fourth TTB was born again at 'K.E.M. Hospital' in Bombay.

Likewise at Ludhiana (Punjab), the first TTB in north India was born in 'Iqbal Nursing Home and Hospital' on 17th June, 1992 by the endless efforts of Dr Iqbal Singh and his brother Dr Jagjit Singh; the TTB was delivered to
Mrs. Gurmail Kaur of Sangrur district of Punjab after 11 years of her married life without any issue.\textsuperscript{34}

Similarly at Jaipur (Rajasthan) Dr M. L. Swarankar, the Medical Director of the 'Jaipur Fertility and Medical Research Centre' produced series of TTBS. The first being on 2-10-90 by means of GIFT, second on 17-10-92 by means of IVF; third on 4-11-92 by means of IVF; fourth on 15-2-93 by means of GIFT; fifth on 17-2-93 by I.V.F. all boys and two were on the way in the month of April, 1993.\textsuperscript{35}

At Delhi,\textsuperscript{36} Dr Manjit Kochar and Dr S. Bhandari have successfully produced TTBS. At Calcutta,\textsuperscript{37} Dr Sudharsan Ghosh Dostidar and Dr Baidyanath Chakraborty have been producing TTBS in their respective IVF centres successfully for the last few years. Also TTBS are produced at Madras and Bangalore.\textsuperscript{38}

At Guwahati,\textsuperscript{39} two doctors are wholeheartedly devoting for the growth of TTB in this north eastern region; Dr M. L. Goenka, of 'Institution of Human Reproduction Consultant' Fatasil Ambari, Guwahati - 781 009 (Assam) who produced first TTB in Guwahati in 1996 and Dr Pramod Sharma of 'Marwari Maternity Hospital' Athgaon, Guwahati - 781 009 who has successfully achieved pregnancy to a lady from Shillong (whose identity the couple does not wish to reveal) by external fertilization of her egg with the sperm of her husband. The lady is expected to deliver the TTB in the month of April, 1997.\textsuperscript{40}

The latest development, as on 11-4-93, can well be understood in the words of Seema Paul who says, "Bombay expectedly boasts at least 338 test tube babies since Dr Indira Hinduja recorded India's first over six years ago (and going by
pregnancies confirmed through ultrasonography, it is over 800), with a reasonable distribution of 167 male to 165 female babies (which include three sets of twins exactly levelling out, and not counting for Dr Farah Mirani who was out of town and Dr Feroza Parikh who declined to divulge any figures at her clinic;" She further reveals, "Madras has 16 males and 6 females; Bangalore has 44 males and 41 females; Calcutta reports 7 males and 4 females (excluding Durga Agarwal, whose being a test tube baby was medically contested, leading to the suicide of Dr Subhas Mukherjee); and Delhi has five test tube babies with a 3:2 proportion".41

However, the data quoted above relates to the period upto April 1993. But by now the number of TTBs in India is estimated to be in thousands, which would further go on increasing rapidly in view of the trend and craze of the infertile couples to beget TTB together with the free-will of the IVF Clinics to manipulate the whole affairs of begetting TTB right from the examination of the patient till the delivery including the arrangements of donated sperms, eggs and embryos and the surrogate mothers.
NOTES AND REFERENCES (CHAPTER - 6, PART - I)


4. Ibid., 1991 ed. 37, p. 11.


7. Ibid., pp. 150-151.

8. Ibid., p. 151.


11. Ibid.

12. Test Tube Babies, n. 6, p. 151.


15. Personal visits and contacts with Doctors, See Appendix-XI (for Names of the Doctors and Institutions).

16. Ibid.


18. Ibid.

19. "Louise is 12; Harsha goes to school", MANORAMA YEAR BOOK, n. 6. p. 152.


23. Ibid.


28. Louise is 12, n. 19.
29. Ravindra Srivastav, n. 9, p. 60.

30. Ibid.

31. Sumit Ghosal, n. 24

32. Seema Paul, "Why are all test tube babies boys?", The Telegraph Magazine, 11 April, 1993, pp. 11-12.


34. Indian Express, New Delhi, June 19, 1992, see Appendix-VII (for photograph).


36. Ibid.

37. Ibid., (also information collected during personal visits)

38. Ibid.

39. Personal Contacts.

40. Ibid.

41. Seema Paul, n. 32, p.11.