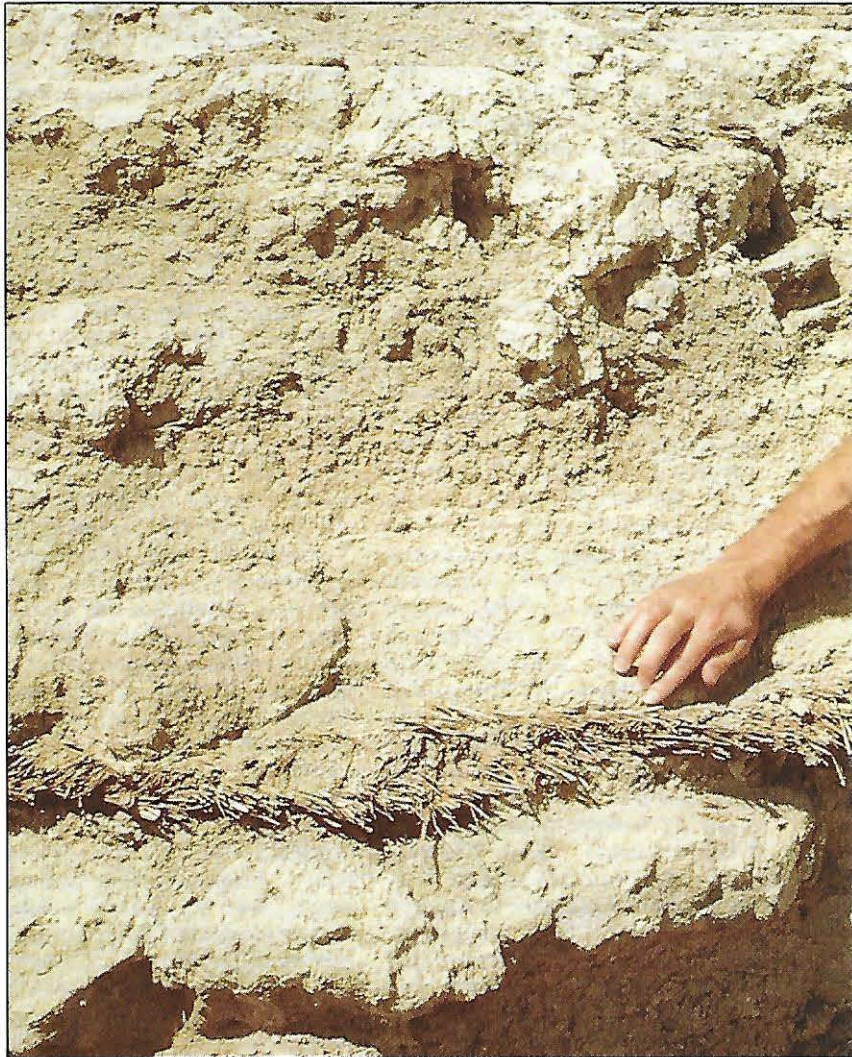


Dr Jean Pierre Giroud, President of the International Geotextile Society, was born in France in 1938. He studied civil engineering at the famed Ecole Centrale de Paris, graduating in 1961. He then went to Grenoble where he worked as a consultant and became a lecturer at the University of Grenoble where he obtained his Doctorate in Soil Mechanics in 1974.

He then became Director of the Master's program of Geotechnical Engineering at the University of Grenoble, as well as Professor of Geotechnical Engineering at Ecole Speciale des Travaux Publics, the French School for Civil Servants in Public Works.

Dr Giroud moved to the United States in 1978 where he became Director of the Geotextiles and Geomembranes Group of Woodward Clyde Consultants. In 1983, he and J E Fluet founded Geoservices, which continues to be the largest and most widely recognized consulting firm specializing in geosynthetics.

In this exclusive interview with Geosynthetics World, he shares some of his experiences gained during twenty years as a researcher and a designer with geosynthetics, as well as eight years as the driving force of the IGS.



Dr J P

GW: Dr Giroud, you have been involved with the design and application of Geosynthetics since 1970, on literally hundreds of projects around the world. What was the first application you worked on?

JPG: The first project on which I used a geotextile was Valcros Dam, constructed in 1970. I had learned from my friend Dr Etienne Leflaive that a non-woven fabric had been laid on a soft subgrade soil to construct an experimental embankment and a few access roads, and I assumed that this material could also be used as a filter. This assumption was confirmed by a review of the

first results from the experimental embankment, which showed that fine subgrade particles were effectively retained by the fabric without pore pressure build-up. The soil in the dam was slightly coarser than the subgrade soil under the experimental embankment. I therefore decided to try the same needlepunched non-woven fabric that had been used under the experimental embankment. It is important to note that this was the first time a non-woven was used as a filter in an actual civil engineering project, and, in retrospect, it was risky to make this first attempt in a dam. Today, 20 years after its construction, Valcros Dam still per-



consider the use of sheet-like materials. However, there are no natural sheet-like materials, and geosynthetics were the first of this kind of materials available to the geotechnical engineer. I used this fundamental approach first to explain the early successes of geosynthetics, and then to envision new applications. This led me, for example, to propose and test in 1971 the use of geotextiles to protect geomembranes, to design and construct in 1974 the first double liner with two geomembranes and an intermediate gravel drainage layer, and to design and install in 1981 the first entirely geosynthetic double liner system with two geomembranes and an intermediate geonet drainage layer.

Left Dr J P Giroud at Agar-Quf-ziggurat, the oldest reinforced structure still in existence, constructed approximately 1000 years BC (hand showing layer of palm reinforcement)

GW: *At the First International Conference held in Paris in 1977, you introduced the word Geotextile. Was there resistance to this, in favour of the more traditional term "Filter Fabrics", which at that time could perhaps have been considered a more descriptive name?*

JPG: First I would like to stress that the reason why I proposed the term geotextile is consistent with the approach I used to envision new applications. Since it was clear to me that geotextiles would have a wide variety of applications, it was equally clear that the term "filter fabric" used by many was not adequate. I therefore looked for a generic name and it was certainly the time of my life where knowledge of Greek and Latin was the most useful! There was surprisingly little resistance to adopt the term geotextile. By the end of the Paris Conference, it was already used by some speakers, and in 1978, a few colleagues and I founded the French Committee on Geotextiles. In contrast, the word geomembrane, which I also proposed in the same paper at the Paris Conference, took off more slowly, but it is now used worldwide.

I should add that the success of the words geotextile and geomembrane was very important because it gave a sense of originality and identity to our discipline, which is today rein-

Giroud

forms very well. In 1980, I realized I had been lucky to successfully design this application with so little information, and, consequently, felt the need for improved geotextile filter design. This motivated me to develop the filter criteria for geotextiles, published in 1982, which has been used since then to design so many filters around the world.

GW: *The uses of plastic "Filter Cloths" and "Pond Liners" were very new at that time. You were amongst the first to recognize their potential range of geotechnical application. What aspects of these materials*

inspired you to envisage the broad range of types and applications we see today?

JPG: I may disappoint you by saying that I was not inspired by some vision or driven by flows of imagination. The reality is less romantic. The applications I envisioned and presented in several lectures and papers in the early seventies were the result of long hours devoted to an analysis of the potential uses of sheet-like materials in conjunction with soil — this was hardly a visionary experience.

This analysis led me to recognize that, since we usually place soil in layers, one should logically

forced by the term geosynthetic coined by J E Fluet.

GW: At the Second International Conference in Las Vegas in 1982, you formally proposed an international association for persons interested in the use of geotextiles and related products. Was this idea difficult to popularize in view of the many different national committees then existing?

JPG: In the late seventies, the growing sense of identity of our discipline led me to think that an international association was needed. In 1980, when I was asked by my American colleagues to chair the organizing committee of an international conference on geotextiles, I accepted on the condition that we call it the Second International Conference, to emphasize the continuity of the discipline. I also understood it was the right time to promote the idea of an international association. In early 1982, I presented the concept at meetings in Europe and North America and, as a result, the minds were prepared when I made the formal proposal in Las Vegas.

GW: The IGS Interim Committee formed in 1982, was Chaired by Professor Charles Schaerer. You and Dr Guy Massenaux were Vice Chairmen and Dr Peter Rankilor was Treasurer. In November 1983, the International Geotextile Society was founded. Was there any time during that hectic period that you or any of your colleagues had doubts about the eventual formation of the IGS?

JPG: Certainly it was a hectic period, but we believed in the IGS and we were an excellent team. Like an automobile, we had a figurehead, an engine, a steering wheel, and a gasoline tank. Professor Schaerer played very well his role of figurehead, projecting for the society an image of wisdom and experience, which was necessary in the years of formation. Dr Massenaux had an essential role in 1982-83: he was the steering wheel, preparing the bylaws and guiding the first steps of the IGS with his ex-

perience of international associations. While I was the engine of the group, Dr Rankilor, as Treasurer, was the gasoline tank of this imaginary automobile. At this point, I would like to recall an anecdote: at the first meeting of the Interim Committee in Las Vegas, somebody pointed out that we had a Treasurer with no money. Peter Rankilor took some money from his pocket and said "Yes, we have money!" This money was effectively used for the first expenses of the IGS and this illustrates the enthusiasm of the founding fathers.

GW: You were elected President of the IGS at the Third International Conference in Vienna in 1986. Please would you give a personal perspective of your four-year term of office?

JPG: First, I want to say that although my election was the logical continuation of the action I had undertaken in 1982, I felt it was a great honour and responsibility to be the first IGS President elected by the General Assembly, for a full four-year term. At this point the IGS was becoming a full-fledged society and it was clear that the 1986-90 period would be essential for the IGS. I knew that my term as President would set the example for the future, hence my dedication.

Now, I would like to review the impressive achievements of the IGS during this four-year period. Unfortunately this would take too much time and anyone interested can see a summary of the achievements in pages 2 and 3 of the March 1990 issue of IGS NEWS, the IGS Newsletter. Since you are asking me for a personal perspective, I would say that I was very fortunate to be given an opportunity to serve our profession and to share this goal with many distinguished professionals, in particular within the IGS Council and many committees co-operating with the IGS.

GW: Finally, Dr Giroud, would you share with your readers your visions for geosynthetics in the nineties? These in terms of possible technical develop-

ments, both in a product sense and in applications.

JPG: First, in order to meet design needs, I see an increasing use of composite geosynthetics such as laminated geomembranes less permeable to chemicals and less prone to stress cracking, geomembranes associated with super-absorbent synthetic products to control leakage, etc.

Second, I envision an increasing use of fibres and yarns to reinforce asphalt pavements or sand filters in earth dams, in parallel with progress in this technique by the use of new shapes or new materials for the fibres or yarns.

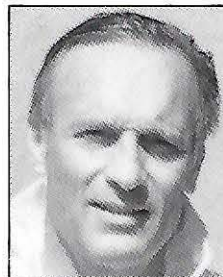
Third, I think it is urgent to improve the jointing of geosynthetics. In particular geotextiles could be sewn with computer controlled sewing machines to achieve stronger seams; alternatively, the use of gluing should be explored. Also, it is necessary to develop ways to seam geosynthetics under water.

Fourth, I believe we will see more and more geosynthetics made in-situ such as geomembranes obtained by spraying resins on the soil or erosion control mats obtained by spraying a mixture of fibres, soil particles and seeds. Also, permeable foams could be used as backfills in very narrow trenches either alone or associated with drainage geocomposites.

Fifth, I think more and more specialized equipment will become available to install geosynthetics such as equipment to place geosynthetics on soft soils or to pretension geosynthetics used for reinforcement.

In all these developments, a close co-operation between polymer scientists and civil engineers will be necessary, just like there is a close co-operation between geologists and civil engineers when natural materials are used.

As you can see, I envision a lot of excitement for this decade. An important challenge will be to educate engineers and installers to properly use geosynthetics. As a consultant and an educator, I am committed to this task and I think an important educational role can be played by an international magazine such as *Geosynthetics World*.



'An important challenge will be to educate engineers and installers to properly use geosynthetics.'

Dr Giroud wurde im Jahre 1938 in Frankreich geboren und studierte Bauingenieurwesen an der berühmten Ecole Central de Paris. Er promovierte zum Doktor für Bodenmechanik an der Universität von Grenoble und wurde dann Direktor des Master's Programms für Geotechnik dieser Universität, wie auch Professor für Geotechnik an der Ecole Speciale des Travaux Publics.

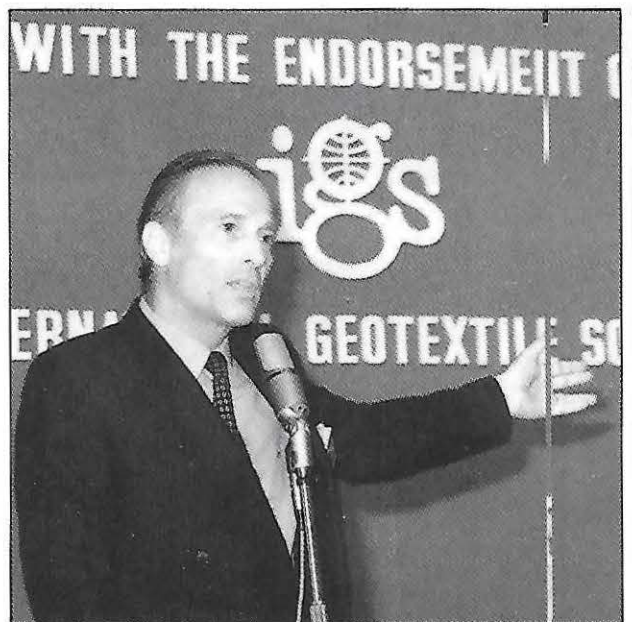
Im Jahre 1977 prägte Dr Giroud auf der Ersten Internationalen Konferenz in Paris — wie sie später genannt werden sollte — den nun universell verwendeten Ausdruck Geotextilien, der viel passender das beschreibt, was bis dahin unter dem Namen Filtervlies bekannt war.

Im Jahre 1978 verlegte Dr

veröffentlichen.)

Während seiner ersten Forschungsjahre stellte er fest, daß Geotextilien immer die Form flacher Bahnen hatten. Im Bauwesen wird Erdmaterial sehr oft in einzelnen Schichten flach aufgeschüttet. Es erschien ihm daher ganz selbstverständlich, daß diese porösen Kunststoffe mit der ihnen eigenen Homogenität für das Umfeld Boden geeignet sein müßten. Aus diesen Überlegungen heraus entwickelten sich viele neue Applikationen.

Zum Zeitpunkt der 2. Konferenz in Las Vegas hat Dr Giroud bereits den Weg für die provisorische Gründung einer internationalen Gesellschaft für Geotextilien geebnet. Während dieser Konferenz wurde ein Interims-Komitee gegründet, dessen Vor-



Zusammenfassung Eines Interviews wiedergegeben von Geosynthetics World mit Dr Jean-Pierre Giroud

Giroud seinen Wohnsitz in die Vereinigten Staaten und wurde Direktor der Woodward Clyde's Geotextiles and Geomembranes Group. 1983 gründete er zusammen mit Mr J E Fluet Geoservices Inc.

Dr Giroud war einer der ersten Ingenieure, die mit Geotextilvliesen arbeiteten. Er wurde von diesem neuen Konzept so gefesselt, daß er bereits im Jahre 1970 einen Textilfilter im Valcross Damm einbauen ließ. Ein Unterfangen, das, wie er jetzt einräumt, aus damaliger Sicht gesehen, riskant war. 20 Jahre später ist der Damm noch immer voll funktionstüchtig. (Durch diese erste Anwendung von Geotextilfiltern wurde Dr Giroud angeregt im Jahre 1982 eine Abhandlung über Filterkriterien zu

sitz Professor Charles Schaerer übernahm. Dr Giroud wurde gemeinsam mit Dr Guy Masseaux stellvertretender Vorsitzender und Dr Peter Rankilor wurde Kassierer. Dr Giroud erinnert sich, wie sie ohne Kapital begannen und bei der ersten Komiteesitzung aus eigener Tasche, im wahrsten Sinn des Wortes, das Geld für die unmittelbar anfallenden Kosten nahmen.

Von Mitte 1982 bis November 1983, dem Zeitpunkt der Gründung der "International Geotextile Society" in Paris, führten alle Komiteemitglieder ein sehr hektisches Leben. Professor Schaerer war der erste Präsident der Gesellschaft. Dr Giroud hatte das Amt des Vizepräsidenten inne, bis er auf

der 3. Internationalen Konferenz in Wien, 1986 von der Generalversammlung zum Präsidenten gewählt wurde. Er bezeichnet es als großes Glück für sich selbst, daß ihm diese einmalige Gelegenheit geboten wurde, gemeinsam mit vielen hervorragenden und berühmten Kollegen im Vorstand der IGS der Geosynthetikbranche zu dienen.

Abschließend sieht Dr Giroud für die Zukunft bei der Verwendung von Fasern und Garnen, besonders auf dem Gebiet der Bodenverstärkung, ein rasches Wachstum voraus und er ist davon überzeugt, daß es neue Kompositprodukte, an Ort und Stelle erzeugte Geosynthetika sowie für den Einbau notwendige Spezialgeräte geben wird.